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Overnight Mail

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RICHARDSON SMITH GARDNER & ASSOCIATES

Engineering and Geological Services

TRANSMITTAL FORM

If enclosures are not as noted or if you require additional information, please notify us immediately

August 7, 2008

Mr. Brian Wooten NCDENR - SWS 1646 Mail Service Center Raleigh, NC 27699-1646

SUBJECT: Davidson County Well Abandonment/Installation Records

Davidson County Landfill

RSG PROJECT NO: Davdco-07-1

We are sending you the following items:

COPIES	ITEM	DESCRIPTION
1	Letter	Well abandonment/installation memo

These are transmitted as checked below:

] For Information	[] Approved as Noted
] As Requested	[] Approved as Noted-Revise and Resubmi
] For Review and Comments	[] Not Approved-Revise and Resubmit
For Revision	[X] For Record and File
] For Approval	[] Submittal
] Approved	[] For Recording

REMARKS:

Brian -

Attached please find the well abandonment and installation records for the Davidson County Phase 2 landfill. John Murray requested that I send this information along to you in his letter regarding the Phase 2 permit to operate. Please call me if you have any questions.

Thanks,

/ Joan A. Smyth, P.G. Senior Hydrogeologist



Engineering and Geological Services

MEMORANDUM

TO:

Pieter Scheer, P.E. - RSG

FROM:

Joan A. Smyth, P.G. - RSG

DATE:

June 13, 2008

RE:

Davidson County Phase 2 Area 1

Cell Subgrade Certification, Well Abandonment

and Well Installation Certification



During the course of construction of the Davidson County Phase 2 Area 1 Cell, I have conducted multiple inspections of the site. My inspections indicated that the soils at grade elevations were generally consistent with those encountered during site drilling (varying combinations of silts clays and sands).

During my visit of December 17th 2007, two large boulders were noted within the cell. One boulder was located east of the center of the cell. This boulder was completely excavated and removed. The second boulder was located within the southern berm. This location, it was later determined, was below proposed subgrade. Once sugrade was achieved, this boulder was suitably below grade.

Prior to construction, all piezometers that were previously installed within the cell for site permitting were abandoned in accordance with 15A NCAC.2C.0113. Well abandonment records are attached. The well locations are shown on **Figure 1**. In addition, one hand dug well located in this area was also abandoned. This well was approximately 36-inches in diameter and extended to a depth of 43 feet below grade. No water was encountered in this well prior to abandonment. A photo of this well after abandonment is attached. The hand-dug well was abandoned on July 10th 2007 while the remaining piezometers were abandoned between June 1 - 6th 2007 and August 29th 2007.

Ground water monitoring wells for the Area 1 cell (MW-1, MW-3s, MW-3d, MW-4s, MW-4d, MW-5, MW-6s, MW-6d, MW-7 and MW-8) were installed in accordance with 15A NCAC 2C..0108. Boring logs for these wells are attached. At this time, proposed monitoring wells MW-2 and MW-9 have not been installed due to access conditions that are being addressed. These wells will be installed prior to landfill operation.

Based upon my observations of the subgrade, well abandonment, and well installation, I hereby certify that the subgrade material was consistent with what was found during the site investigation, the piezometers were abandoned in accordance with 15A NCAC 2C.0113 and the monitoring wells were installed in accordance with 15A NCAC 2C.0108

oan A. Smyth. P.G.

14 N. BOYLAN AVENUE . RALEIGH, NC 27603



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Well Abandonment Records

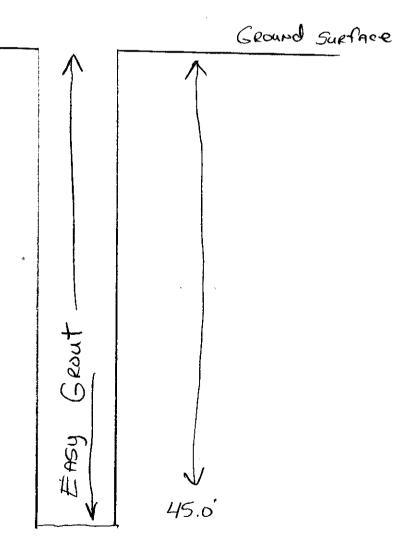
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North Carolina Department of Environment and Natural Resources-Division of Water Quality

WELL CONTRACTOR CERTIFICATION#

to the control of the	
1. WELL CONTRACTOR:	5. WELL DETAILS:
DAVIO BARRON	a. Total Depth: 45.0 ft. Diameter: 2" in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): 34.55 ft. Measuring point is 1.70 ft. above land surface.
Well Contractor Company Name	Measuring point is 1110 It. above land surface.
STREET ADDRESS 1720 UARGRAVE ST.	6. CASING: Length Diameter
W-SAION N.C. 27107	a. Casing Depth (if known): 45 ft. 2 in. b. Casing Removed: 45 ft. 2 in.
W-SAlem N.C. 27107 City or Town State Zip Code 336 724-6994	
Area code - Phone number	7. DISINFECTION:
2. WELL INFORMATION: 02±5	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable) YZ J	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) しいみせん としとら	Bentonite lb. Type: Slurry Pellets Water gal.
	<u>Other</u>
3. WELL LOCATION:	Type material EASY GROUT
COUNTY DAVIDSON QUADRANGLE NAME	Amount 1501bs 75 gals water
NEAREST TOWN: Thomasuille 1242 old Fluy 29 27360 N.C.	Amount 100 to 100 100 100 100 100 100 100 100 100 10
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL; OURR REAM WELL + TREMIE GROW
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other	from Bottom To Top
(Circle appropriate setting)	ALL Well Materials Removed
LATITUDE 3 5 50.887 May be in degrees, minutes, seconds, or in a	HE MAN LINESTING HERICOGA
LONGITUDE $\frac{60}{11.183 w}$ minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used. 6-6-07
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED D-6-07
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY DAVID SON CO. LANGE !!	WITH ISA NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1242 Old Hwy 29	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Thomasuille N.C. 27360	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
City or Town State Zip Code	DISTRICT OF CHILD OF TAKEN OF THE CONTAINED OF TAKEN
46. CONTACT PERSON/WELL OWNER: NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
	(The private well owner must be an individual who personally abandons his/her residential well
	in accordance with 15A NCAC 2C .0113.)
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(336) 242-2284	
Area code - Phone number	





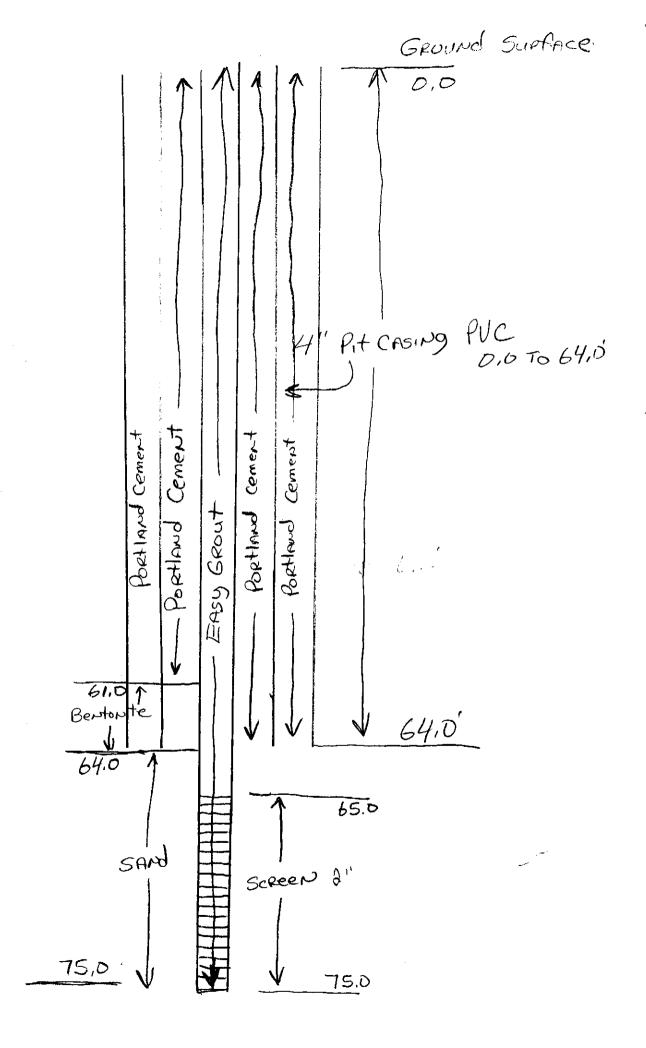
Area code - Phone number

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources-Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

WELL CONTRACTOR CERTIFICA	110N#
1. WELL CONTRACTOR: DAULO BARRON	5. WELL DETAILS: a. Total Depth: 75.0 ft. Diameter: 2" in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): 27.30 ft.
Eng Tectonics	Measuring point is 2.29 ft. above land surface.
Well Contractor Company Name	
STREET ADDRESS 1720 UARGRAVE ST	6. CASING: Length Diameter
W-SAlem N.C. 27107 City or Town State Zip Code 724-6994	a. Casing Depth (if known): 75 ft. 2 in. b. Casing Removed: ft. 2 in.
City or Town State Zip Code	b. Casing Removed: ftin.
Area code - Phone number	7. DISINFECTION: ρ
2. WELL INFORMATION:	(Amount of 65%-75% calcium hypochlorite used)
2. WELL INFORMATION: SITE WELL ID # (if applicable)	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential	Bentonite lb.
Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Type: Slurry Pellets
Other (list use) WATCR LEVEL 5	Water gal.
	Other
3. WELL LOCATION:	Type material EASY GROUT Amount 50 lbs 25 gals water
COUNTY DAVISSON QUADRANGLE NAME	Type material
NEAREST TOWN: Thomasuille 1242 old Hwy 29 27360 N.C.	Amount 501bs 25 gAIS WATER
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	TREMIE GROUT FROM Bottom
Slope Valley Flat Ridge Other	of well to top
(Circle appropriate setting)	
LATITUDE 3 5 50.867 N May be in degrees, minutes, seconds, or in a	
LATITUDE 5 0 11 193 w minutes, seconds, or in a decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6-6-07
NAME OF FACILITY DAVID SON CO. LANDEN 1	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1242 Old Hwy 29	10,10
Thomasuille N.C. 27360	
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
STREET ADDRESS 1242 Old Hwy 29	(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)
Thomasulle N.C. 27360	I DAVID BARRON
	PRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State Zip Code	
	•





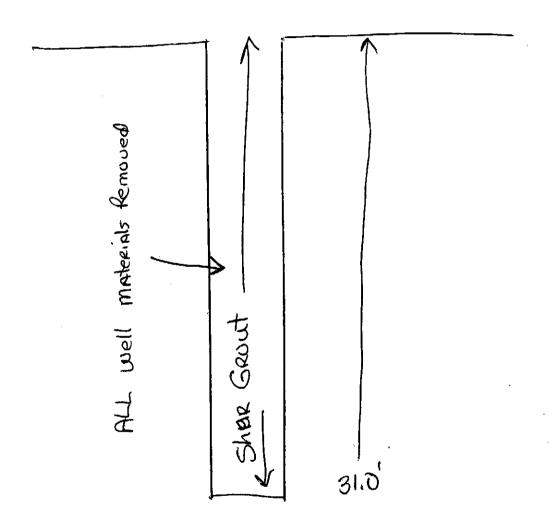
Area code - Phone number

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION #

WELL CONTRACTOR CERTIFICATION

1. WELL CONTRACTOR: DAUID BARRON Well Contractor (Individual) Name ENG. Tectonics Well Contractor Company Name STREET ADDRESS 1720 UARGRAVE ST. W-SAlem N.C. 27107 City or Town State Zip Code (336 724-6994 Area code - Phone number	5. WELL DETAILS: a. Total Depth: 31.0 ft. Diameter: 3 in. b. Water Level (Below Measuring Point): 21.70 ft. Measuring point is 5 ft. above land surface. 6. CASING: Length Diameter a. Casing Depth (if known): 31.0 ft. 2 in. b. Casing Removed: 31.0 ft. 2 in. 7. DISINFECTION: None
2. WELL INFORMATION: SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gai.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentouitelb, Type: SlurryPellets Watergal.
3. WELL LOCATION: COUNTY DAVIDSON QUADRANGLE NAME NEAREST TOWN: Thomasville N.C. 1242 Ob Huy 29 27360-0024	Other Type material Shur Grout Amount 80165 50 gals water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	Over drill well to Remove All well Materials, Pump Shur Growt From Bottom to Top
LATITUDE 35° 50.51 N May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) 4a. FACILITY- The name of the business where the well is located. Complete 4a aud4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used. 8-29-07 11. DATE WELL ABANDONED
FACILITY ID #(if applicable) NAME OF FACILITY ON VIOLOGON CO. LANGON STREET ADDRESS 1242 old Hwy 29 Thomasulle N.C. 27360-0024 City or Town State Zip Code	1 DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER: NAME CHARLIE BRUSH WOOD STREET ADDRESS 1242 old Hwy Q9 Thomasville N.C. 27360-0024 City or Town State Zip Code (336). 242-2284	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) PRINTED NAME OF PERSON ABANDONING THE WELL





North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION # 2089

WELL CONTRACTOR CERTIFICATION #

1. WELL CONTRACTOR: DAULO BARRON	5. WELL DETAILS: a. Total Depth: 26 ft. Diameter: 20.0 ft. b. Water Level (Below Measuring Point): 20.0 ft. Measuring point is 485 ft. above land surface
Well Contractor (Individual) Name ENG. Tectonics	b. Water Level (Below Measuring Point): 20.0 ft. Measuring point is 1.85 ft. above land surface.
STREET ADDRESS 1720 UARGRAVE ST	6. CASING: Length Diameter
W-SAloM N.C. 27107 City or Town State Zip Code (336) 724-6994	a. Casing Depth (if known): b. Casing Removed: ft. in.
Area code - Phone number	7. DISINFECTION: NA
2. WELL INFORMATION: P2 T8 SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
. DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WATER LEVEL 5	Bentonite ib. Type: Slurry Pellets gal.
3. WELL LOCATION:	Other Type meterial EASY GROUT
NEAREST TOWN: QUADRANGLE NAME TOWN OF A 27360 N.C.	Type material <u>EASY</u> GROUT Amount 1001bs + 50 g Als water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING:	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: OUR REAM WELL AND TREMILE
Slope Valley Flat Ridge Other (Circle appropriate setting)	GROWT FROM Bottom To TOP
LATITUDE 3 5 5056 N May be in degrees, minutes, seconds, or in a	ALL Well Materials Kemoved
LONGITUDE 80 1105w decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	types of fill materials used. 11. DATE WELL ABANDONED 6-4-07
FACILITY ID #(if applicable)	I DO HERBBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY DAVID SON CO. LANGE 11	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
Thomasuille N.C. 27360	David Barron 6-4-07
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 1242 old Hwy 29	in accordance with 15A NCAC 2C .0113.)
Thomasulle M.C. 27360	PRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State Zip Code (336) - 242 - 2284	
Area code - Phone number	

Ground Surface

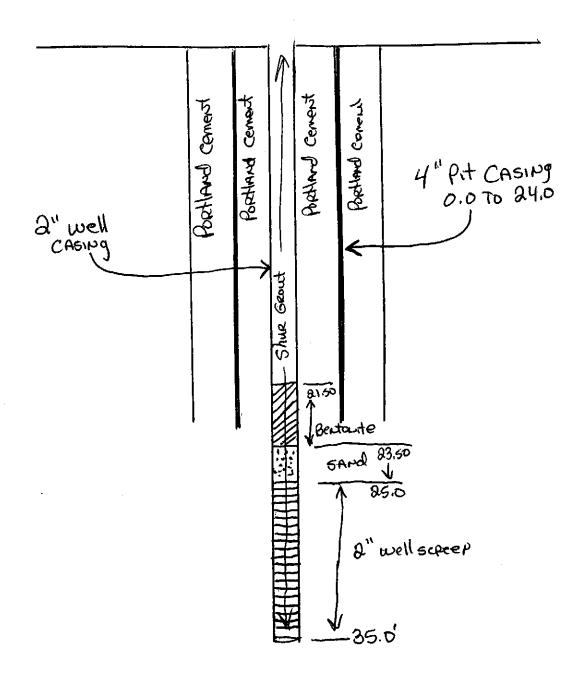
EASY GROUT 26.0



North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION # 2089

WELL CONTRACTOR CERTIFICATION #

WELL CONTRACTOR: OAU'O BARRON Well Contractor (Individual) Name ENG. TECTONICS	5. WELL DETAILS: a. Total Depth: 35.0 ft. Diameter: 2 in. b. Water Level (Below Measuring Point): 33.48 ft. Measuring point is 3.0 ft. above land surface.
Well Contractor Company Name STREET ADDRESS 1720 UARGRAUE ST. W-SAlem N.C. 27107 City or Town State Zip Code	6. CASING: 24'-4'CASING: a. Casing Depth (if known): b. Casing Removed: Length Diameter 35' ft. 3'' in.
336 - 734-6994_ Area code - Phone number	7. DISINFECTION: NONE
2. WELL INFORMATION: PZ-9 SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cementlb. Cementlb. Watergal. Watergal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonite lb. Type: Slurry Pellets Water gai.
3. WELL LOCATION: COUNTY DAUIDSON QUADRANGLE NAME NEAREST TOWN: Thomasuile Nic. 1242 Od Hwy 29 87360-0024	Other Type material Shur Growt Amount 40165 25 gals water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: Fump Shur Growt From Bottom of Well To Top
LATITUDE 350 50.51N May be in degrees, minutes, seconds, or in a decimal format Longitude /longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 8-29-07
NAME OF FACILITY DAUGSON CO. LANGOIL	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1342 old Hwy 89 Thomasulle N.C. 27340-0024 City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR 8-89-07 DATE
4b. CONTACT PERSON/WELL OWNER: NAME CHARLIE BRUSH WOOD STREET ADDRESS 1242 old Husy 29 Thomasuille N.C. 27360-0024 City or Town State Zip Code	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) PRINTED NAME OF PERSON ABANDONING THE WELL
336 - 242-2284 Area code - Phone number	



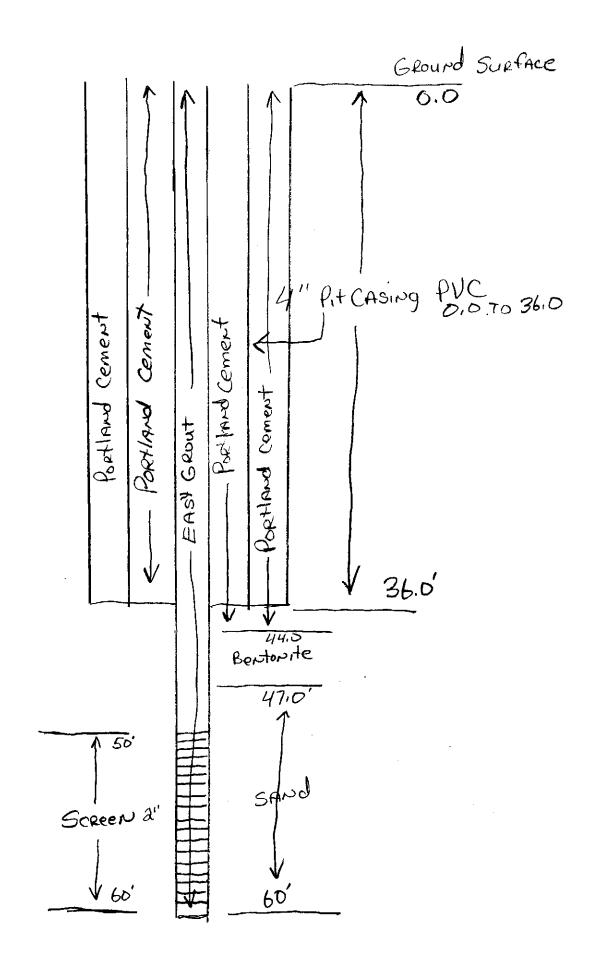


WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #_

1. WELL CONTRACTOR: DAULO BARRON	5. WELL DETAILS: a. Total Depth: 60 ft. Diameter: 2 in.
Well Contractor (Individual) Name	a. Total Depth:ft. Diameter:in, b. Water Level (Below Measuring Point):ft.
ENG. Tectonics	Measuring point is $\frac{\partial \cdot 10}{\partial \cdot 10}$ ft. above land surface.
Well Contractor Company Name	in door of distriction.
STREET ADDRESS 1720 UARGRAVE ST	6. CASING: Length Diameter
W-5410M N.C. 27107	a. Casing Depth (if known): 60 ft. 21 in. b. Casing Removed: 7. ft. 2. in.
Well Contractor Company Name STREET ADDRESS 1720 UARGRAVE ST. W-SALOM N.C. 27107 City or Town State Zip Code 724-6994	u $ u$ $ u$ $ u$
Area code - Phone number	7. DISINFECTION:
2. WELL INFORMATION: SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
SITE WELL ID # (It applicable)	6. SEADING NATERIALS.
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WHER LEVELS	Bentonite lb. Type: Slurry Pellets Water gal.
Other (list use) Other 2003	Other
3. WELL LOCATION:	FAGU GROUT
COUNTY DAVIDSON QUADRANGLE NAME	Type material
NEAREST TOWN: Thomasuille 1242 old Hwy 29 27360 N.C.	Type material <u>FASY</u> GROUT Amount <u>501bs</u> <u>85gals</u> water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	TREMIE GROUT FROM BOTTOM
Slope Valley Flat Ridge Other(Circle appropriate setting)	of well to Top
May be in degrees,	
LATITUDE 35 310 10 minutes, seconds, or in a	
LONGITUDE 80 1055 W decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and
(Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6-5-07
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY DAVID SON CO. LANDEN	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1242 Old Hwy 29	David Ramon 6-6-07
Thomasuille N.C. 27360	<u> </u>
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 1242 ald Huy 29	in accordance with 15A NCAC 2C .0113.)
Thomasulle N.C. 27360	NUMBERSON
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
336 242-2284	
Area code - Phone number	

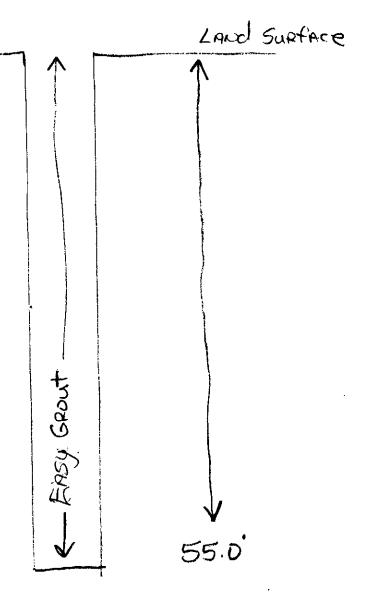




North Carolina Department of Environment and Natural Resources-Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

WELL CONTRACTOR: DAULO BARRON Well Contractor (Individual) Name ENG. TECTONICS	5. WELL DETAILS: a. Total Depth: 55 ft. Diameter: 2 in. b. Water Level (Below Measuring Point): 35.31 ft. Measuring point is 3.0 ft. above land surface.
Well Contractor Company Name STREET ADDRESS 1720 JARGRAVE ST. W-SAION N.C. 27107 City or Town State Zip Code 336, 724-6994	6. CASING: a. Casing Depth (if known): b. Casing Removed: Length Diameter 6. D 1. D
Area code - Phone number 2. WELL INFORMATION: SITE WELL ID # (if applicable)	7. DISINFECTION: A (Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable) COUNTY WELL PERMIT # (if applicable)	Neat Cement Sand Cement Cementlb. lb. Water gal. gal.
DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WARE LEVELS	Bentonite Bentonite lb. Type: Slurry Pellets Water gal.
3. WELL LOCATION: COUNTY DAVIDSON QUADRANGLE NAME NEAREST TOWN: Thomasuille 1242 old Hwy 89 27360 N.C.	Other Type material EASY GROUT Amount 2001bs + 100gals water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: , OUER REAM WELL, and TREMIC GROWT, FROM BOTTOM TO TOP RLL Well Materials Removed
LATITUDE 3 5 5050 M May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY DOVIDSON CO. LANDEN STREET ADDRESS 1242 Old Huy 29. Thompsoile N.C. 27360 City or Town State Zip Code	11. DATE WELL ABANDONED 1 DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. David Barry 6-6-07
4b. CONTACT PERSON/WELL OWNER: NAME Chale Brushwood STREET ADDRESS 1242 Old Hwy 29 Thomasulle N.C. 27360 City or Town State Zip Code 336 242-2284 Area code - Phone number	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) DAUB BARRON PRINTED NAME OF PERSON ABANDONING THE WELL





North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

1. WELL CONTRACTOR:	5. WELL DETAILS:
DAVID BARRON	a. Total Depth: 60 ft. Diameter: 60 in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): 23.98 ft.
ENG. Tectonics	Measuring point is <u>a.90</u> ft. above land surface.
Well Contractor Company Name STREET ADDRESS 1720 JARGRAVE ST.	6. CASING: Length Diameter
12-SAlem N.C. 27107	a. Casing Depth (if known): b. Casing Removed: Length Diameter At. 21' in.
W-SAlem N.C. 27107 City or Town State Zip Code	b. Casing Removed: O ft. $Z^{1'}$ in.
336 - 724-6994 Area code - Phone number	7. DISINFECTION:
OT FIX	(Amount of 65%-75% calcium hypochlorite used)
2. WELL INFORMATION: PZ 19 SITE WELL ID # (if applicable)	8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential	Bentoniteib.
Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation	Type: Slurry Pellets Water gal.
Other (list use) WATER Levels	water
,	Other
3. WELL LOCATION: COUNTY DAVISON QUADRANGLE NAME	Type material EASY GROUT Amount 50 lbs + 25 gals water
NEAREST TOWN: QUADRANGLE NAME NEAREST TOWN: QUADRANGLE NAME	Amount 50 lbs + 25 gals water
1242 old Hwy 29 27360 N.C.	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	Tremie Grout From Bottom
Slope Valley Flat Ridge Other	of well to top
(Circle appropriate setting)	
LATITUDE 3 5 5103N May be in degrees, minutes, seconds, or in a	
LONGITUDE 080 1048 w decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 5
NAME OF FACILITY DAVIDSON CO. LANGEIL	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
NAME OF FACILITY DAOID SOD CO. ZAPOTITI	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS	Darie Barron 6-6.07
	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
City of 10wil	
46. CONTACT PERSON/WELL OWNER: NAME CHARLE BRUSHWOOD	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
THE STATE OF THE S	The private well owner must be an individual who personally abandons maker residential went
	in accordance with 15A NCAC 2C .0113.) OAUD BARRON
Thomasulle Mici 27360	PRINTED NAME OF PERSON ABANDONING THE WELL
City or Town State Zip Code	
336 242 - 2284	
Area code - Phone number	

GROUND Sueface 0.0 PORTLAND CEMENT PoRtlArd Cement EPSY GROUT 45.0 Bentonite 48.0 48' a"sfreen SAND 60° 60'



1. WELL CONTRACTOR:

Well Contractor (Individual) Name

FNO. Tector ICS

Well Contractor Company Name

DAVID

BARRON

STREET ADDRESS 1720 UARARAUE

WELL ABANDONMENT RECORD

North Carolina Dopartment of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

Vatur ION	al Resources- Division of Water Quality #
5.	well Details: a. Total Depth: b. Water Level (Below Measuring Point): 47.24 ft. Measuring point is 7.90 ft. above land surface.
6.	CASING: Length Diameter
	a. Casing Depth (if known): 56 ft. 2 in. b. Casing Removed: ft. in.
7.	DISINFECTION: P A
	(Amount of 65%-75% calcium hypochlorite used)
8.	SEALING MATERIAL:
	Neat Cement Sand-Cement
	Cement lb. Cement lb. Water gal. Water gal.
	Bentonite
	Bentonite lb. Type: Slurry Pellets gal.
	Other FROM GROWT
	Type material EASY GROUT Amount 50 lbs 25 gals water
9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: TRANSCE GROUT FROM Bottom OF WELL TO TOP
10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used. 6-6-07
11.	DATE WELL ABANDONED
WIT	THEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE IN 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF S RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
SIG	NATURE OF CERTIFIED WELL CONTRACTOR DATE
SIG (The	NATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE private well owner must be an individual who personally abandons his/her residential wel

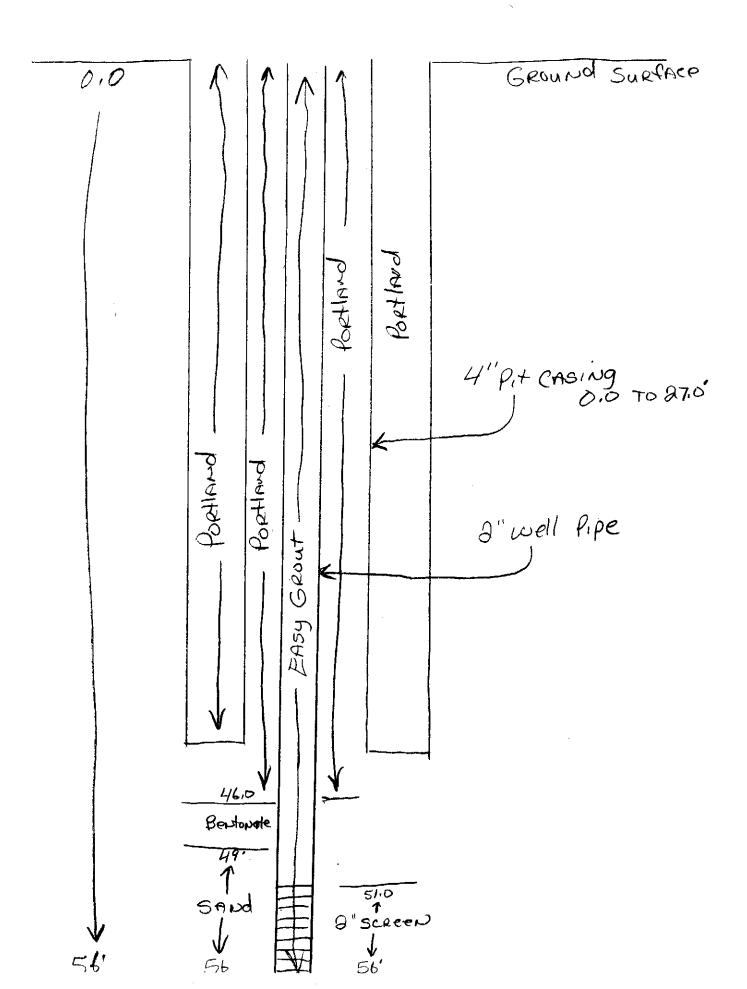
Area code - Phone number 2. WELL INFORMATION: SITE WELL ID # (if applicable) STATE WELL PERMIT # (if applicable) COUNTY WELL PERMIT # (if applicable) DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use): Monitoring Residential Agricultural Industrial/Commercial Municipal/Public ection Irrigation weter Levels Injection Other (list use) COUNTY DAVISSON OUADRANGLE NAME (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Valley Flat Ridge (Circle appropriate setting) Other 35 5053N May be in degrees, LATITUDE minutes, seconds, or ma-LONGITUDE 80 1101W decimal format Latitude/longitude source: (GPS) Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) 4a. FACILITY. The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY DAVID SON CO. LANDA 11 STREET ADDRESS 1242 Old Hwy Thomasuille City or Town 4b. CONTACT PERSON/WELL OWNER: BRUSHWOOD harle Thomasulle Zip Code 242- *228*4 .336 s Area code - Phone number

in accordance with 15A NCAC 2C .0113.)

ろうころ

BARROM

PRINTED NAME OF PERSON ABANDONING THE WELL





1. WELL CONTRACTOR:

2. WELL INFORMATION: SITE WELL ID #fif applicable)

Municipal/Public

3. WELL LOCATION:

LONGITUDE 80

FACILITY ID #(if applicable)

4b. CONTACT PERSON/WELL OWNER:

Thomasuille City or Town

Thomasulle

Recovery

Slope

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use): Monitoring

Injection

COUNTY DAVISON OUADRANGLE NAME

35 5053N

Latitude/longitude source: GPS

attached to this form if not using GPS.)

1103W

(Location of well must be shown on a USGS topo map and .

4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

NAME OF FACILITY DAVID SON CO. LANGE !!

STREET ADDRESS 1242 old Hwy 29

NAME Charle Brushwood STREET ADDRESS 1242 old Hwu

State

Other (list use) WAter

TOPOGRAPHIC / LAND SETTING: Valley Flat Ridge (Circle appropriate setting)

Industrial/Commercial

Other

Irrigation

DAVID BARRON Well Contractor (Individual) Name ENG. Tectonics Well Contractor Company Name

STREET ADDRESS / 720 UARGRAUE

North Carolina Department of Environment and Natural Resources: Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

Residential

Agricuitural

May be in degrees, minutes, seconds, or in a

Topographic map

decimal format

5.	WELL DETAILS:	
l	a. Total Depth: 40 ft. Diameter: 2 in,	
	b. Water Level (Below Measuring Point): 36,53ft.	
	Measuring point is 2.90 ft. above land surface.	
	in about faird surface.	
6.	CASING: Length Diameter	
	Dength Dianeter	
ĺ	a. Casing Depth (if known): 40 ft. 2" in.	
	a. Casing Depth (if known): 40' ft. 2' in. b. Casing Removed: 40' ft. 3" in.	
	υ A	
7.	DISINFECTION:	
	(Amount of 65%-75% calcium hypochlorite used)	
8.	SEALING MATERIAL:	
	Neat Cement Sand Cement	
	Cement lb. Cement lb.	
	Watergal. Watergal.	
	Bentonite	
	Bentonite ib.	
	Type: Siurry_ Pellets_	
	Watergal.	
	Other	
	Type material CH99 ORDU	
	Type material <u>EASY GROUT</u> Amount 1501bs 75 gals water	
	Amount	
9.	EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:	
	Over Ream well and Tremie	
	GROUT FROM BOHOM TO TOP	
	Removed All well materials	
	Tree and 14th Open Hilliams	
10	WOOT BY CRAIN D	
10.	WELL DIAGRAM: Draw a detailed sketch of the well on the back of this	
	form showing total depth, depth and diameter of screens (if any) remaining	
	in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.	
11. 1	DATE WELL ABANDONED 6-1-0 (
I DO I	IEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE	
WITH	15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF	
THIS	RECORD HAS BEEN PROVIDED TO THE WELL OWNER.	
\cup	avid Barron 6-6-67	
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE		
SIGN/	ATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE ivate well owner must be an individual who personally abandons his/her residential well	
in accordance with 15A NCAC 2C .0113.)		
DAVID BARRON		
PRINTED NAME OF PERSON ABANDONING THE WELL		

GROUND SUPPACE 40.0



Area code - Phone number

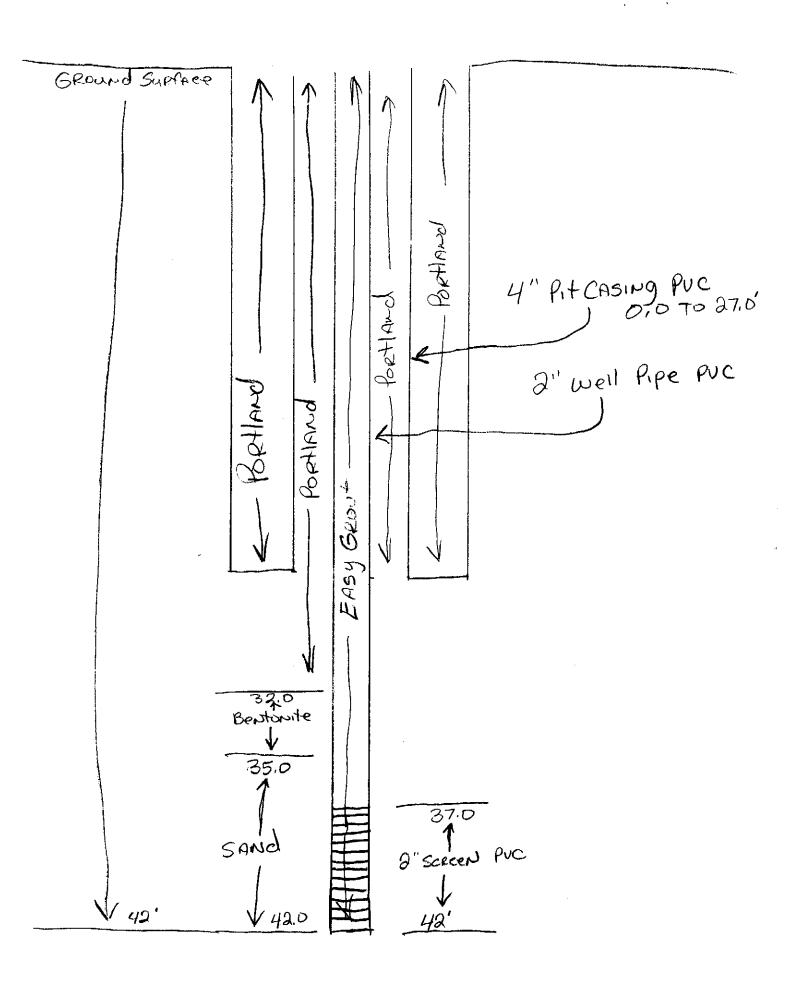
WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources-Division of Water Quality

	CERTIFICATION #

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1. WELL CONTRACTOR: DAUD BARRON Well Contractor (Individual) Name ENG. Tectonics Well Contractor Company Name STREET ADDRESS 1720 JARGRAVE ST. W-SAIEM N.C. 27107 City or Town State Zip Code 336 - 724-6994 Area code - Phone number 2. WELL INFORMATION: SITE WELL ID # (if applicable)	5. WELL DETAILS: a. Total Depth: 42.0 ft. Diameter: 2 in. b. Water Level (Below Measuring Point): 33.56 ft. Measuring point is 3.10 ft. above land surface. 6. CASING: Length Diameter a. Casing Depth (if known): 42 ft. 2 in. b. Casing Removed: 7. DISINFECTION: (Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL: Neat Cement Sand Cement
STATE WELL PERMIT # (if applicable)	Cement lb. Cement lb.
COUNTY WELL PERMIT # (if applicable)	Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	Bentonite
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WHEL LEVELS	Bentonite lb. Type: Slurry Pellets Water gal.
3. WELL LOCATION:	Other FASU GROUT
COUNTY DAVIDSON OUADRANGLE NAME	Type material EASY GROUT AMOUNT 50165 + 25 gals water
NEAREST TOWN: Thomasuille 1242 old Hwy 29 27360 N.C.	Amount 50105 - 20 gris conne
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	TREMIE GROUT FROM BOTTOM OF WELL TO TOP
LATITUDE 3 5 5056 N May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6-1-07
FACILITY ID #(if applicable) NAME OF FACILITY DAVID SON CO. LANGEITI STREET ADDRESS 1242 Old Hwy 29 Thomasuille N.C. 27360	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. 6-6-07
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood STREET ADDRESS 1242 Old Huy 29	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
SHOEL REDICES	in accordance with 15A NCAC 2C .0113.) DOUG BARRON
Thom Asulle M.C. Z7360 City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
(336) 242- 2284	





North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION#

I. WELL CONTRACTOR: DAULO BARRON Well Contractor (Individual) Name ENG. Technics Well Contractor Company Name	5. WELL DETAILS: a. Total Depth: 59' ft. Diameter: 2' in. b. Water Level (Below Measuring Point): 35.90ft. Measuring point is 3/10 ft. above land surface.
STREET ADDRESS 1720 JARGRAUR ST. W-SAlow N.C. 27107 City or Town State Zip Code 724-6994	6. CASING: Length Diameter a. Casing Depth (if known): 59' ft. 2'' in. b. Casing Removed: 6. ft. 2'' in.
Area code - Phone number 2. WELL INFORMATION: SITE WELL ID # (if applicable)	7. DISINFECTION:(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable) COUNTY WELL PERMIT # (if applicable)	Neat Cement Sand Cement Cementlb. lb. Water gal. gal.
DWQ or OTHER PERMIT # (if applicable) WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WATEL Levels	Bentonite Bentonite ib. Type: Slurry Pellets Water gal.
3. WELL LOCATION: COUNTY DAVIDSON QUADRANGLE NAME NEAREST TOWN: 1242 Old Hwy 29 27360 N.C.	Other Type material EASY GROUT Amount 50/bs 25 gAls water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: TREMIE GROUT FROM BOTTOM OF WELL TO TOP
LATTTUDE 3 5 50550 May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY. The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID #(if applicable) NAME OF FACILITY DAVIDSON CO. LANDFILL STREET ADDRESS 1242 Old Huy 3.9 Thomasuile N.C. 27360 City or Town State Zip Code	11. DATE WELL ABANDONED 6-1-0 1 DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER. SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
Ab. CONTACT PERSON/WELL OWNER: NAME Charle Brushwood STREET ADDRESS 1242 old Hwy 29 Thomasulle M.C. Z7360 City or Town State Zip Code 336 Z42 - Z284 Area code - Phone number	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) PRINTED NAME OF PERSON ABANDONING THE WELL

GROUND Sueface

4" PIT CASING PUC 0.0 TO 42:0 Postland 2" CASING PUC 48.D Bertovite 51,0 51.0 Screen a' PUC 59,0



Area code - Phone number

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality
WELL CONTRACTOR CERTIFICATION # 2089

WELL CONTRACTOR CERTIFICATION #

1. WELL CONTRACTOR:	5. WELL DETAILS:
DAVID BARRON	a. Total Depth: 44 ft. Diameter: 21 in. b. Water Level (Below Measuring Point): 38.83 ft.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): 38.83 ft.
Eng. Tectonics	Measuring point is 2,70 ft. above land surface.
Well Contractor Company Name	
STREET ADDRESS 1720 UARGRAVE ST	6. CASING: Length Diameter
W-SAleM N.C. 27107 City or Town State Zip Code 724-6994	a. Casing Depth (if known); $44'$ ft. $2''$ in.
City or Town State Zip Code	b. Casing Removed: $\frac{U''}{U''}$ ft. $\frac{Z''}{U''}$ in.
336, 724-6994	
Area code - Phone number	7. DISINFECTION: PA
2. WELL INFORMATION: 07#20	(Amount of 65%-75% calcium hypochlorite used)
SITE WELL ID # (if applicable)	8. SEALING MATERIAL:
	G. ODRIMING HAIS I MALARMA.
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
	Cementlb. Cementlb.
COUNTY WELL PERMIT # (if applicable)	Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential	Bentonite ib.
Municipal/Public Industrial/Commercial Agricultural	Type: Slurry Pellets
Recovery Injection Irrigation Other (list use) WATER LEVELS	Water gal.
Other (list use) Donne Acoets	Other
3. WELL LOCATION:	Type material EASY GROUT Amount 1501bs 759Alswater
COUNTY DAVIDSON QUADRANGLE NAME	Type material 2 1750 OROSC
NEAREST TOWN: Thomasuille	Amount 150 lbs 75 gals water
1242 old Hwy 29 27360 N.C.	
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: Over Ream Well and Tremie
TOPOGRAPHIC / LAND SETTING:	GROUT FROM BOTTOM TO TOP
Slope Valley Flat Ridge Other (Circle appropriate setting)	ORDON PROM 10 191
	Removed All well MATERIALS
LATITUDE 3 5 5055 May be in degrees, minutes, seconds, or in a	
LONGITUDE 80 1107w decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: OPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY. The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6-1-07
FACILITY ID #(if applicable)	
NAME OF FACILITY DAVID SON CO. LANGE !!	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF
STREET ADDRESS 1242 Old Hwy 29	THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
Thomasuille N.C. 27360	() () Barren 6-6-07
	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
, , , , , , , , , , , , , , , , , , ,	
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 1242 ald Huy 29	in accordance with 15A NCAC 2C .0113.)
Thomasulle N.C. 27360	DAVID BARRON
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
336). 242 - 2 <i>284</i>	

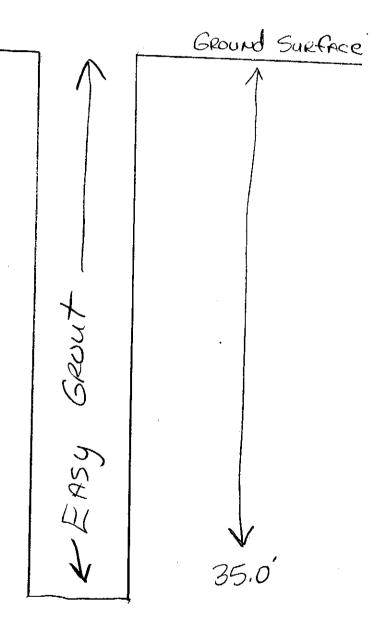
GROUND Surface 44.0



North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION # 2059

WELL CONTRACTOR CERTIFICATION#

<u> </u>	
1. WELL CONTRACTOR:	5. WELL DETAILS: 35,00 Pinns
DAVID BARRON	a. Total Depth: ft. Diameter: in.
Well Contractor (Individual) Name	b. Water Level (Below Measuring Point): Z5.32 ft.
Eng. Tectonics	Measuring point is ft. above land surface.
Well Contractor Company Name STREET ADDRESS 1720 UARGRAVE ST.	6. CASING: Length Diameter
W-5410M N.C. 27107	a. Casing Depth (if known): 35 ft. 2 in. b. Casing Removed: 35 ft. 2 in.
W-SAlem N.C. 27107 City or Town State Zip Code 724-6994	ll v A
Area code - Phone number	7. DISINFECTION:
2. WELL INFORMATION: SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) WAtee Levels	Bentonitelb. Type: Slurry Pellets Water gal.
(1.0. 4.0.7)	Other On I-
3. WELL LOCATION:	Type material EASY GROUT Amount 150 lbs 75 gals water
COUNTY DAVIDSON QUADRANGLE NAME	Isolbs 75 aplawater
NEAREST TOWN: Thomasuille 1242 old Hwy 29 27360 N.C.	Amount 133 103 13 13 17 3
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:
TOPOGRAPHIC / LAND SETTING:	Over Ream well and Tremie
Slope Valley Flat Ridge Other (Circle appropriate setting)	GROUT FROM Bottom TO TOP
· · ·	ALL Well MATERIALS REMOVED
LATITUDE 3 5 5053 P May be in degrees, minutes, seconds, or in a	
LONGITUDE 8 0 1108 W decimal format	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this
Latitude/longitude source: GPS Topographic map	form showing total depth, depth and diameter of screens (if any) remaining
(Location of well must be shown on a USGS topo map and	in the well, gravel interval, intervals of casing perforations, and depths and
attached to this form if not using GPS.)	types of fill materials used.
4a. FACILITY-The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6
FACILITY ID #(if applicable)	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE
NAME OF FACILITY DAVIDSON CO. LANDEN 11	WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1242 old Hwy 29	David Barron 6-8-07
Thomasuille N.C. 27360	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR
4b. CONTACT PERSON/WELL OWNER:	
NAME Charle Brushwood	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well
STREET ADDRESS 1242 old Huy 29	in accordance with 15A NCAC 2C .0113.)
Thomasulte N.C. 27360	DAVIO BARRON
City or Town State Zip Code	PRINTED NAME OF PERSON ABANDONING THE WELL
336 , 242 - 2284	
N	



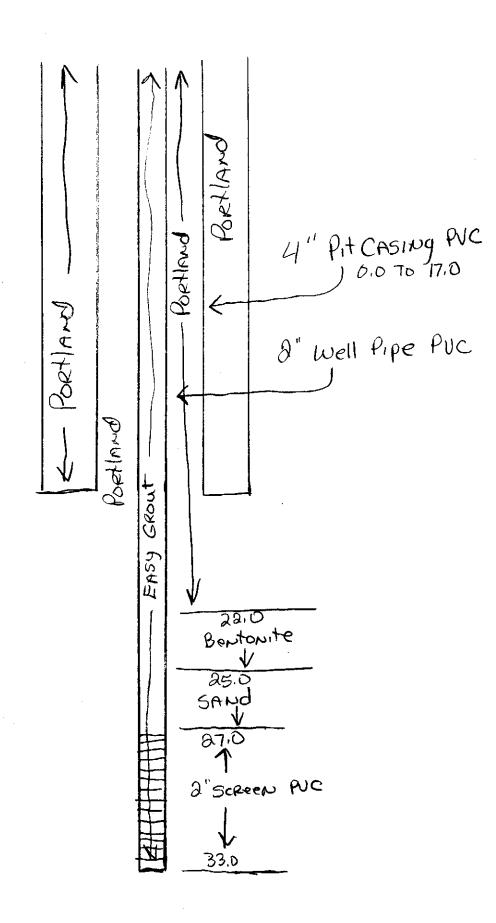


RECD JUN 1 4 2007

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION #

	
1. WELL CONTRACTOR: DAULO BARRON Well Contractor (Individual) Name ENG. TECHONICS	5. WELL DETAILS: a. Total Depth: 33 ft. Diameter: in. b. Water Level (Below Measuring Point): 2118 ft. Measuring point is 2120 ft. above land surface.
Well Contractor Company Name STREET ADDRESS 1720 JARGRAVE ST. W-SALOM N.C. 27107	6. CASING: a. Casing Depth (if known): b. Casing Removed: Length Diameter A. 2'' in.
City or Town State Zip Code 336 724-6994 Area code - Phone number	7. disinfection: ρ
2. WELL INFORMATION: SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement Cement!b. Cement!b.
COUNTY WELL PERMIT # (if applicable)	Watergal. Watergal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) ひ合き とのも	Bentonitelb. Type: Slurry Pellets Watergal.
3. WELL LOCATION: COUNTY DAVIDSON QUADRANGLE NAME NEAREST TOWN: QUADRANGLE NAME 1242 OLD HWY 29 27360 N.C.	Other Type material EASY GROUT Amount 50 lbs 25 gals Water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: TREMIE GROUT FROM Bottom OF Well To TOP
LATITUDE 3 5 5057N LONGITUDE 6 0 1109 w Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 6-5-07
NAME OF FACILITY DAVID SON CO. LANDEN 11 STREET ADDRESS 1242 Old Hwy 29	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
Thomasuille Nic. 27360 City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
Ab. CONTACT PERSON/WELL OWNER: NAME Charle Brushwood STREET ADDRESS 1242 old Huy 29 Thom Asulle M.C. Z7360 City or Town State Zip Code (336) - 242 - 2284	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) AUD BAROM PRINTED NAME OF PERSON ABANDONING THE WELL
Area code - Phone number	

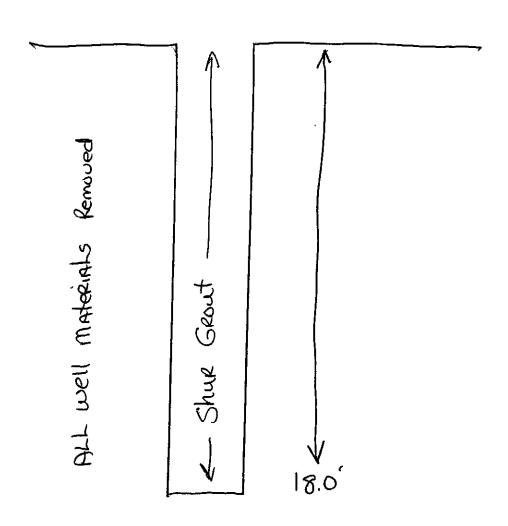




WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION #

WELL CONTRACTOR CERTIFICA	
Well Contractor (Individual) Namp FAG. Techonics Well Contractor (Company Name STREET ADDRESS 1730 DARGRAUE ST. Well Contractor Company Name STREET ADDRESS 1730 DARGRAUE ST. City or Town State Zip Code 336 734 - 6994 Area code - Phone number 2. WELL INFORMATION: SITE WELL ID # (if applicable) COUNTY WELL PERMIT # (if applicable) COUNTY WELL PERMIT # (if applicable) WELL USE (Circle applicable use): Monitoring Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use) 3. WELL LOCATION: COUNTY DAVISON QUADRANGLE NAME NEAREST TOWN: Thomas Julie N.C. 1942 OA Huy 39 27360 - 0024 (Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting) LATITUDE 35 50.50 M LATITUDE 36 50.50 M LATITUDE 36 50.50 M LATITUDE 36 TOPOGRAPHIC Many be in degrees, ministes, seconds, or in a decimal format Location of well must be shown on a USGS topo map and attached to this form if not using GPS.) 4a. FACILITY: The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.) FACILITY ID # (if applicable) NAME OF FACILITY ON UNICOSON CO. LANCON!	5. WELL DETAILS: a. Total Depth: 18.0 a. Diameter: 2" in. b. Water Level (Below Measuring Point): 120 a. Measuring point is 3.0 a. above land surface. 6. CASING: Length Diameter a. Casing Depth (if known): 18.0 a. 2" in. b. Casing Removed: 18.0 a. 2" in. b. Casing Removed: 18.0 a. 2" in. c. Casing Removed: 18.
	1 WATER 154 NOAC 2C WELL CONSTRUCTION STANDARDS, AND THAT A COLL OF



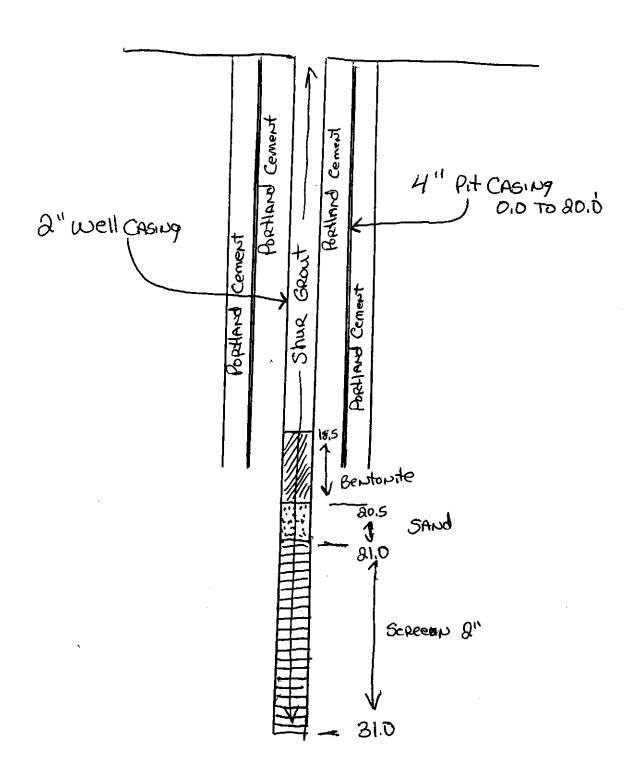


ABANDONMENT RECORD

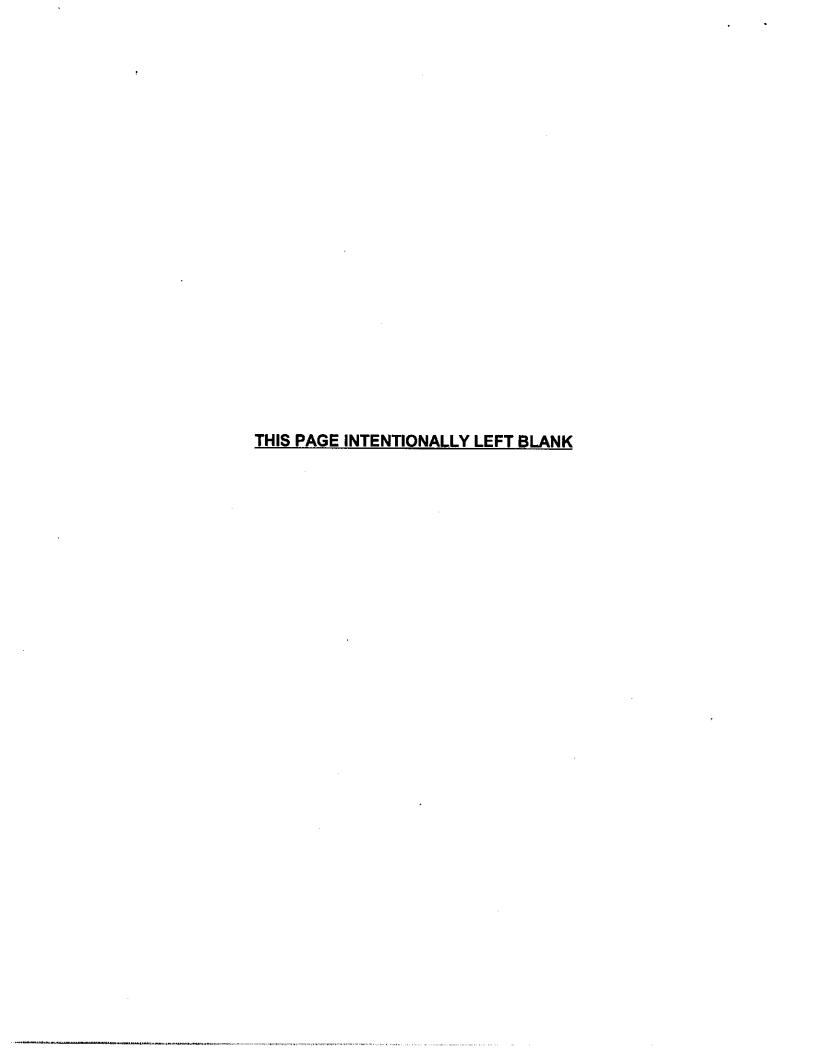
North Carolina Department of Environment and Natural Resources-Division of Water Quality
WELL CONTRACTOR CERTIFICATION # 2089

WELL CONTRACTOR CERTIFICATION

WELL CONTRACTOR CERTIFICA	11014#
WELL CONTRACTOR: DAUID BARRON Well Contractor (Individual) Name ENG. TECTONICS	5. WELL DETAILS: a. Total Depth: 31.0 ft. Diameter: 2 in. b. Water Level (Below Measuring Point): 12.0 ft. Measuring point is 3.0 ft. above land surface.
Well Confractor Company Name STREET ADDRESS 1780 UARGRAVE ST. W-SAlem N.C. 27107 City or Town State Zip Code	6. CASING: QO'- 4"cASING: a. Casing Depth (if known): b. Casing Removed: Length Diameter 31.0 ft. 2" in.
336 724-6994 Area code - Phone number	7. DISINFECTION: NONE
2. WELL INFORMATION: P2 43d SITE WELL ID # (if applicable)	(Amount of 65%-75% calcium hypochlorite used) 8. SEALING MATERIAL:
STATE WELL PERMIT # (if applicable)	Neat Cement Sand Cement
COUNTY WELL PERMIT # (if applicable)	Cement lb. Cement lb. Water gal. Water gal.
DWQ or OTHER PERMIT # (if applicable)	<u>Bentonite</u>
WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use)	Bentonitelb. Type: Slurry Peliets Water gal.
3. WELL LOCATION: COUNTY DAVIDSON QUADRANGLE NAME NEAREST TOWN: Thomasville N.C. 1242 Old Hwy 29 27360-0024	Other Type material Shur Grout Amount 40165 25 gals water
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code) TOPOGRAPHIC / LAND SETTING: Slope Valley Flat Ridge Other (Circle appropriate setting)	9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL: PUMP Shur growt From Bittom of well to top
LATITUDE 350 50.50 May be in degrees, minutes, seconds, or in a decimal format Latitude/longitude source: GPS Topographic map (Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)	10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.
4a. FACILITY. The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)	11. DATE WELL ABANDONED 8-29-07
NAME OF FACILITY ORUGSON CO. LANDRILL	I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THE RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
STREET ADDRESS 1242 old Hwy 29 Thomasuile N.C. 27360-0024 City or Town State Zip Code	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
4b. CONTACT PERSON/WELL OWNER: NAME Charlie Brush wood STREET ADDRESS 1242 old Hwy Q9 Thomasuille N.C. 27360-0024 City or Town State Zip Code 336 242-2284 Area code - Phone number	SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.) AUCO BARRON PRINTED NAME OF PERSON ABANDONING THE WELL
VIOR CORO - I HONE HERMAN	



Photos



Davidson County Phase 2 Area 1 Landfill Geologic Certification Photographs June 13, 2008

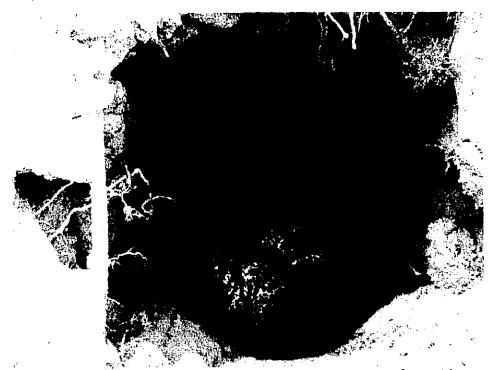


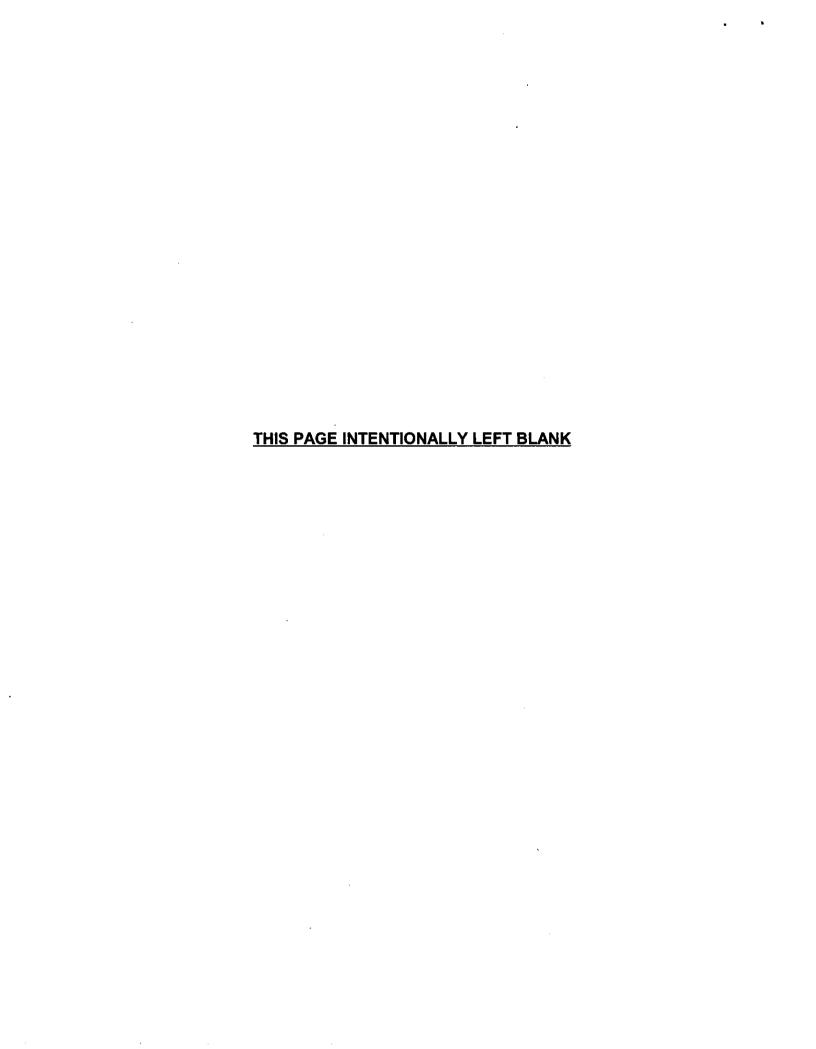
Photo 1: Hand dug well after abandonment by emplacement of grout by cement mixer to elevation of final subgrade.



Monitoring Well Boring Logs (MW-1, MW-3s, MW-3d, MW-4s, MW-4d, MW-5, MW-6s, MW-6d, MW-7, MW-8)

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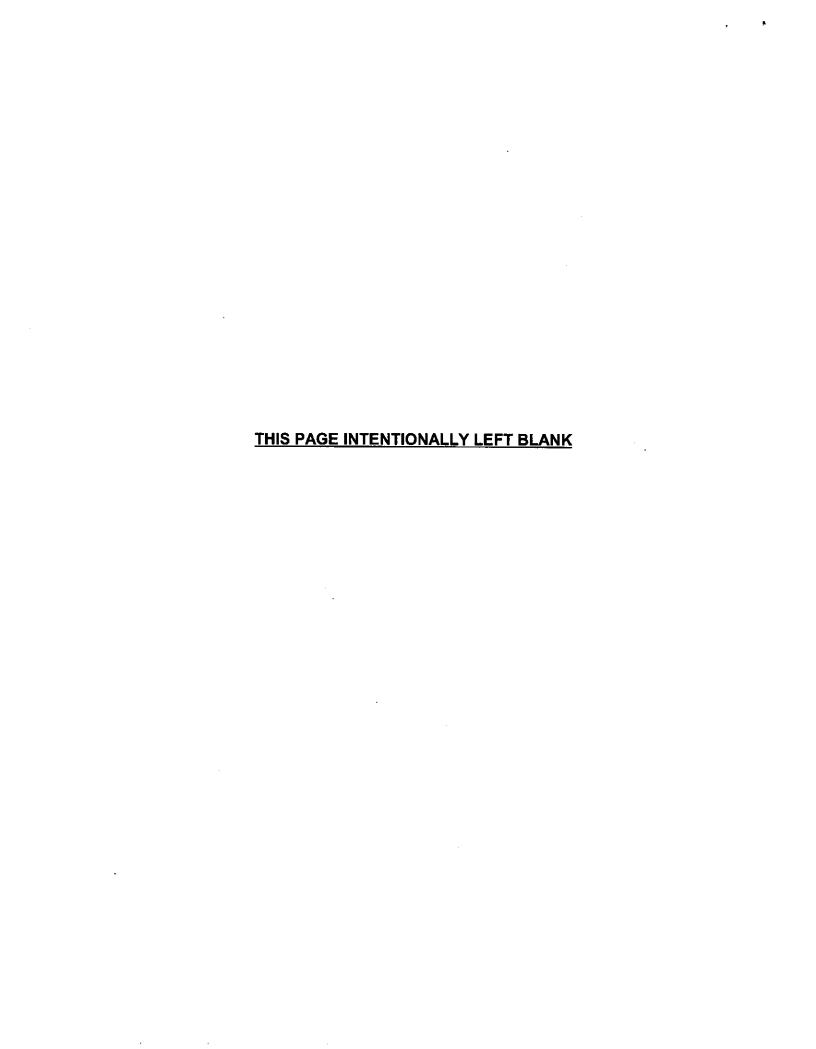
١.	Richardson Smith Gardner and Assoc 14 North Boylan Avenue, Raleigh NC 27603						FIELD BOREHOLE LOG				
'	V)	14 North Boy (919) 828-05		enue, F	taleigh NC	27603	BOREHO	LE NUMBER	MW-1	Page 1 of	f 1
1	I AQ	JECT NAME: ATION: LING CO:	Dav Dav	idson	County I	Landfill		TH: 20 ft. RFACE ELEVATION:	N:		
		LING METHOD	_	_	ng recto	mcs, 1 .A.		STATIC WATER I	EVEL (TO	C)	
	FIELD PARTY: David Barron						Depth (ft)				
	GEO	LOGIST:	Cla	rk Wij	pfield	•	Time				
	DAT	E BEGUN: 3/25	5/08	DATE	COMPL	ETED: 3/25/08	Date				
	DEРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			ПТНОГОСУ	DEPTH	WELL
0.	0 אר			1	HSA	Ι	·			-, 0.0 -, -	
1.					под	SILT: Dry brown silt.				1.0 -	
2. 3.										2.0 -	5 5 8
4.	\mathbb{H}									4.0	
5.	0 -	7,10,11		18"						5.0	
6	네 기	.,,				SANDY SILT: Moist g High organic content at at 20ft.	gray and white sand t 15 ft. Some dark p	ly silt with Fe oxidation gray gravel at 20 ft. B.	T. 2	6.0	
7.	o -									7.0	23.000
8.	\mathbb{H}									8.0 –	
	0 -			:						9.0 -	
IO. I1.	\mathbb{H}	8,10,13		16"						10.0 -	
12.	-11									12.0 -	
13.	Ⅎ									13.0 -	
14.	4									14.0 -	
15.	o -]	38,50/4		6"					<u> </u>	15.0 -	
16.	- 11			!						16.0 -	
17.	- 1									17.0 -	
18.	- 1									18.0 -	
19. 20.	tĺ									19.0	



$\langle \rangle$					ner and Assoc	FIELD BOREHOLE LOG					
(A)	14 North Boy (919) 828-05		enue, R	aleigh NC	27603	BOREHOLE	NUMBER	MW-3s	Page 1 of	1	
	JECT NAME: ATION:	Dav		County County 1	Landfill	TOTAL DEPTH: GROUND SURF	ACE ELEVAT				
	LING CO:			-	nics, P.A.	TOP OF CASING	SELEVATION STATIC WATE)C)		
DRIL	LING METHOD	: HSA	A.			Depth (ft)	6.21	IN CLUCK (III	J <i>o</i> ,		
FIEL	D PARTY:	Dav	id Bar	ron		Time	1:10pm				
	LOGIST:		rk Wij		·	Date	3/27/08				
DATE	BEGUN: 3/24		DATE	COMPL	ETED: 3/24/08	1,		<u> </u>	<u>I.</u>		
рертн	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			LITHOLOGY	рертн	WELL	
.0 קר									0.0		
.0 -		SS		HSA	CLAYEY SILT: Upper with organics. Bottom 3 sandy silty clay with Fe	3" is dry, compacted of	wn wet clayey s clay; and fine gr	ilt ained	1.0 -		
.0 -									2.0 -		
0 -									3.0		
o 🗍				!					4.0 -		
<u>ν</u> 1	3,3,5	SS	18"						5.0 -	**************************************	
.0 -								:	6.0 -		
.0 -								·	7.0 -		
.0 -									8.0 -		
0 -									9.0		
1	11,13,17	ss	10"		CLAY AND SAND: G	Gray clay and fine gra	ined sand ome Fe oxidation	on, with	10.0		
0 -					bottom 5" wet.	,			12.0 -		
.0 -									13.0 -		
ا ٥.									14.0 -		
.0 - - - 0.									15.0 -		
.0 _] .0 _	3,7,5	SS	8"		SAND: Course grained ft.	d wet gray sand with	quartz gravel. B	T. 18	16.0 -		
4							,		17.0 -		
'.ㅇ -			•		i .			1 •	p #1	. — .	



	F X				ner and Assoc	FIELD BOREHOLE LOG					
	14 North Boy (919) 828-05	•	enue, R	aleigh NC	27603	BOREHOLE	NUMBER N	IW-3D	Page 1 of	1	
PRC	JECT NAME:	Davi	idson	County !	Landfill	TOTAL DEPTH:					
100	ATION:	Dav	idson	County		GROUND SURFACE ELEVATION: TOP OF CASING ELEVATION:					
	LING CO:	Eng	ineeri	ng Tecto	nics, P.A.	STATIC WATER LEVEL (TOC)					
DRI	LING METHOD	: HSA				Depth (ft)	1				
FIEL	.D PARTY:	Daiv	d Bai	ron		Time					
GEC	LOGIST:	Clar	rk Wij			Date					
DAT	E BEGUN: 3/26	5/08	DATE	COMPL	ETED: 3/26/08		<u> </u>	<u> </u>			
рертн	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			ПТНОГОСУ	ОЕРТН	WELL	
0.0 ¬		T		ПСЛ	1				0.0 T		
1.0 1 2.0 3.0 4.0 5.0 6.0 7.0 7.0 7.0 9.0 1	3,3,5	SS	18"	HSA	CLAYEY SAND: Upp with organics. Bottom sandy silty clay with Fo	3" is dry compacted o	own wet clayey silt lay with fine grained		1.0 - 2.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 - 9.0 - 10.0 -		
0.0 1.0 2. 3.0 4.0 5.0	11,13,17	SS	10"		CLAY AND SAND: C conglomerate, with lar bottom 5" wet.	Gray clay and fine gra ge organic material. S	ined sand Some Fe oxidation wi	th	11.0 - 12.0 - 13.0 - 14.0 - 15.0 -		
16.0 - 17.0 -	3,7,5	SS	8"		SAND: Course grained	d wet gray sand with	quartz gravel.		16.0 – 17.0 – 18.0 –		
18.0 - 19.0 - 20.0 - 21.0 - 22.0 - 23.0 -	50/3	SS	4"		SANDY SILT: Wet co	ourse grained sticky g	ray sandy silt. A.R. 2	4	19.0 – 20.0 – 21.0 – 22.0 –	1996	
24.0 - 25.0 - 26.0 - 27.0 - 28.0 -		SS		АН	GRANITE: Weathered	d boulder.			25.0 - 26.0 - 27.0 - 28.0 -		
29.0					SAND: 6" thick fine to	o coarse sand layer.		\ 	29.0 — 30.0 —		
30.0 - 31.0 - 32.0 - 33.0 - 34.0 - 35.0 - 36.0 - 37.0 - 38.0 -		Grat			GRANITE: Weathere	d granite, wet. B.T. 4	0.5 ft.		31.0 - 32.0 - 33.0 - 34.0 - 35.0 - 36.0 - 37.0 - 38.0 -		
39.0 - 10	1	Grat							39.0 - 40.0 -		



					ner and Assoc	FIELD E	BOREHOLE	LOG			
	14 North Bo (919) 828-05	•	enue, F	Raleigh NC	27603	BOREHO	LE NUMBER	MW-4s	Page 1 of	1	
100	PROJECT NAME: Davidson County OCATION: Davidson County Landfill LING CO: Engineering Tectonics, P.A. DRILLING METHOD: HSA					TOTAL DEPTH: 21 GROUND SURFACE ELEVATION: TOP OF CASING ELEVATION: STATIC WATER LEVEL (TOC)					
	.LING METHOD .D PARTY:					Depth (ft)	18.97				
!	DPARTT: DLOGIST:		vid Baı rk Wij			Time	1:30pm				
1	E BEGUN: 3/24		-	-	ETED: 3/24/08	Date	3/27/08				
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			THO! OGY	DEPTH	WELL	
			•	•					0.0 		
0.0 - 1.0 - 2.0 - 3.0 - 4.0 - 6	6,9,11	SS	18"	HSA	SILT: Dry reddish brov	vn silt with Mn mot	tles.		1.0 - 2.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 -		
9.0 - 10.0 - 11.0 -	8,10,15	SS	18"		CLAYEY SILT: dry bitint and Mn mottles.	rownish yellow cla	yey silt, with sligh	t red	9.0 – 10.0 – 11.0 – 12.0 –		
13.0 - 14.0 - 15.0 -	46,33,45	SS	9"		SILTY CLAY: Upper lower 5" is gray/white	4" is dry gray and of fine grained silt.	lark reddish browi	1,	13.0 - 14.0 - 15.0 - 16.0 -		
7.0						·			17.0 – 18.0 – 19.0 –		
20.0 -	50/2	ss	2"		SANDY SILT: Dry w partially weathered ro	hite/gray with smal	l amounts of gran	ite from	20.0		



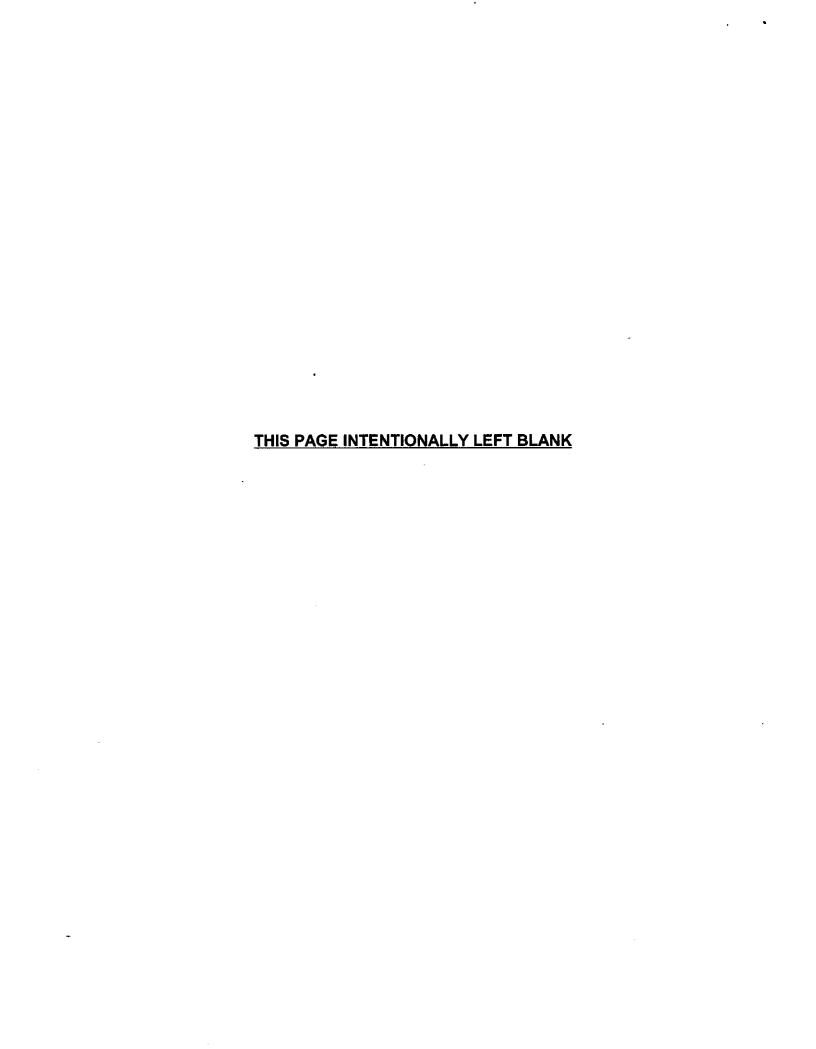
					ner and Assoc	FIELD B	OREHOLE	LOG			
	14 North Bo (919) 828-05		enue, R	Raleigh NC	27603	BOREHOLE NUMBER MY)	Page 1 of	1
	DJECT NAME: CATION:	Davi		County County	Landfill	TOTAL DEPTH GROUND SUR TOP OF CASIN	FACE ELEVAT				
	LLING CO:	Eng	ineeri	ng Tecto	nics, P.A.		STATIC WATE		то	C)	
DRI	LLING METHOD	: HSA	and	AH		Depth (ft)			T	-/	
FIEL	_D PARTY:	Dav	id Baı	rron		Time	-		\dashv		
GEO	DLOGIST:	Clar		pfield		Date	 				
DAT	E BEGUN: 3/20	5/08	DATE	COMPL	ETED: 3/26/08	Date		1			
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION				LITHOLOGY	ОЕРТН	WELL INSTALLATION
0.0 ¬		100	 	TÜÇA	1	.=	· ,			- 0.0	t .
1.0 - 2.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 - 9.0 -	6,9,11	SS	18"	HSA	SILT: Dry reddish brow	n silt with Mn mott	ling.			1.0 - 2.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 - 9.0 -	
0.0	8,10,15	SS	18"		CLAYEY SILT: Dry b tint and Mn mottling.	rownish yellow clay	ey silt, with sligl			11.0 - 12.0 - 13.0 - 14.0 -	
15.0 <u> </u>	46,33,45	SS	9"		SILTY CLAY: Upper lower 5" is Gray/white	4" is dry gray and da fine grained silt.	ırk reddish browi	1, \frac{1}{2}	/-7 /-7 /-7	16.0 - 17.0 - 18.0 -	
19.0 <u> </u>	50/2	ss	2"		SANDY CLAY: Small partially weathered roo	k. A.R. at 21 ft.	ite/gray granite f	rom \-	V =	19.0 – 20.0 – 21.0 –	
22.0 - 23.0 - 24.0 - 25.0 - 26.0 - 27.0 - 28.0 - 31.0 - 32.0 - 33.0 - 35.0 - 35.0 - 25		Grab		AH	DIORITE: Dry diorite	fracture at 36 ft.				26.0 - 27.0 - 28.0 - 29.0 - 30.0 - 31.0 - 32.0 - 33.0 - 34.0 - 35.0 -	
36 37	1	Grat								36.0	



	<i>F</i> \				ner and Assoc	FIELD BOREHOLE LOG					
	14 North Bo (919) 828-05	_	enue, R	taleigh NC	; 27603	BOREHO	LE NUMBER N	IW-5	Page 1 of 1		
PRC	JECT NAME:	Dav	idson	County		TOTAL DEPTI					
100	ATION:	Dav	i d son :	County 1	Landfill		RFACE ELEVATION:				
	LLING CO:	Eng	ineeri	ng Tecto	nics, P.A.	TOP OF CASI	NG ELEVATION: STATIC WATER LE	VEL /TC)C)		
DRI	LLING METHOD	: HS	A	_		Depth (ft)		VEL (IC	, , , , , , , , , , , , , , , , , , ,		
FIEL	_D PARTY:	Dav	id Bar	ron		Time	27.77		•	——	
GEC	DLOGIST:	Cla	rk Wiş	ofield			1:40pm				
DAT	E BEGUN: 3/24	1/08	DATE	COMPL	ETED: 3/24/08	Date	3/27/08				
рертн	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			ПТНОГОСУ	ОЕРТН	WELL	
0.0 🗇		SS	18"	HSA					0.0		
1.0	1		,,,	110/	SILTY CLAY: Dry red	l silty clay		-72-7	1.0 -		
2.0 - 3.0 -				ļ				12-7	3.0		
4.0								(-)	4.0		
5.0	3,9,7	ss	14"						5.0		
6.0 - 7.0 -	-,-,-	_						15.	7.0		
8.0								-2	8.0		
9.0	!		1					-Z-2	9.0		
10.0	6,9,14	SS	17"		CLAY AND SAND: U	Inner 4" red clay m	iddle 8" white and		10.0 – 11.0 –		
11 12.しィ	i I				brown fine grained san	d with organics, bo	ttom 5" white/ gray cla	у -	12.0 -	1	
13.0					silt.			-7/-7	13.0 -		
14.0								-27.3	14.0 -		
15.0	4,4,7	SS	14"		CLAYEY SILT: Mois	t white and gray cla	vev silt with Fe	,	15.0 - 16.0 -		
16.0 - 17.0 -	, .]	ŀ		oxidation incremental	banding from 45 de	grees to parallel		17.0 -		
18.0					respectively. Brown sa	ind observed at 36 f	î. B.T. at 38 ft.		18.0 -		
19.0			1					} *	19.0 -		
20.0	5,10,15	ss	16"						20.0 - 21.0 -		
21.0									22.0 -		
22.0 - 23.0 -									23.0 -		
24.0]						<u>;</u>	24.0 -		
25.0	13,20,27	ss	10"						25.0 - 26.0 -		
26.0	10,20,2	-	ĺ						27.0 -		
27.0 - 28.0 -		1					•		28.0 -		
29.0								de la companya de la	29.0 -		
30.0	9,17,27	ss	12"						30.0 - 31.0 -		
31.0 -	3, , , , , 2.	"	-					5	32.0 -		
32.0 - 33.0 -	1							\$. .5	33.0 -		
34.0 -	1	1		1					34.0 -		
35.0 -	27,26,50/6	ss	14"					\$ 	35.0 -		
36.0 -	21,20,0010	33	'"						36.0 - 37.0 -		
37 38.			<u> </u>					2	38.0		



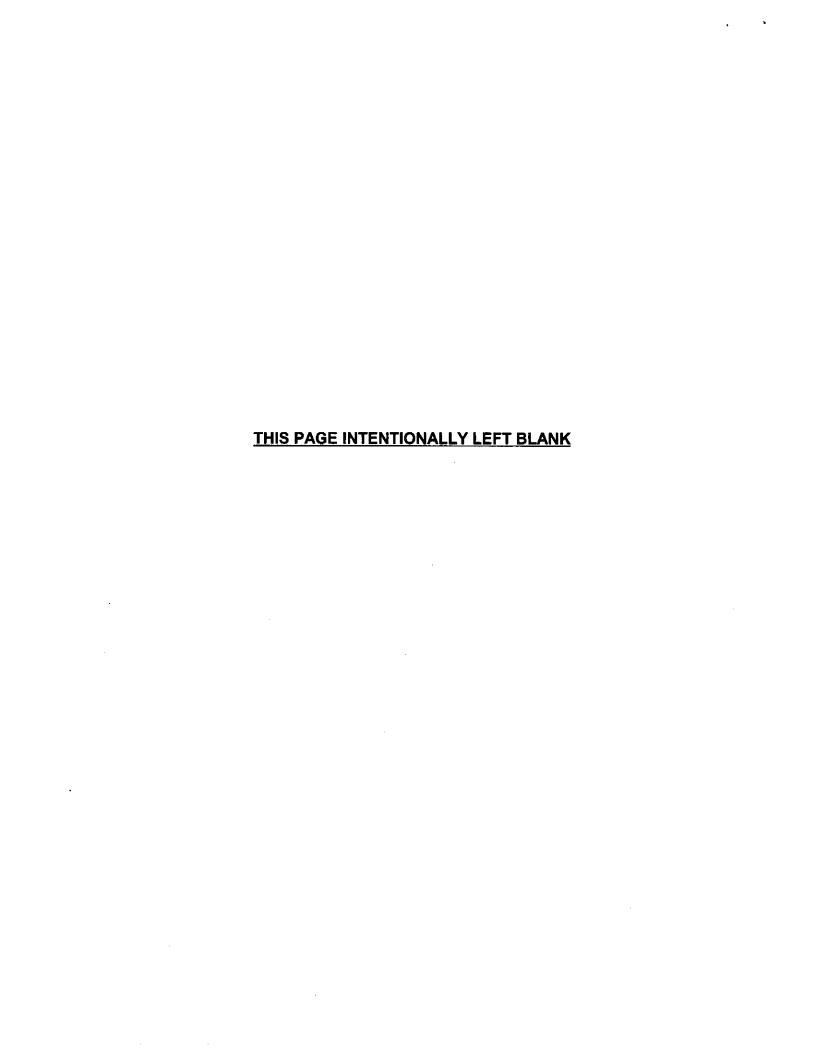
\mathcal{L}	Richards				ner and Assoc	FIELD B	OREHOLE	LOG			
X	(919) 828-05		enue, R	aleign NC	. 27603	BOREHOL	E NUMBER	MW-6s	Pa	ge 1 of	1
PRC	JECT NAME:	Dav	idson (County		TOTAL DEPTH	: 40 ft.			•	
100	ATION:			County 1	Landfill	GROUND SUR					
	LLING CO:			-	nics, P.A.	TOP OF CASIN					
DRII	LLING METHOD:	_	•		,		STATIC WATER	K LEVEL (100)		
FIEL	D PARTY:		- ∕id Bar	ron		Depth (ft)	33.60		_		
GEO	DLOGIST:	Cla	rk Wip	field		Time	2:00pm				
DAT	E BEGUN: 3/25	/08	DATE	COMPL	ETED: 3/25/08	Date	3/27/08		<u> </u>		
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			V60 10UT		E	WELL
0.0 1.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	28,37,50/1 20,36,31 23,36,50/6 32,44,50/5	ss ss ss	13" 17" 14"	HSA	SANDY SILT: Brownis spots in upper 10". Low grained sand with silt que depth. Increased percer	er portion is white/ partz fragments, inco	gray compacted trease in size with	ine .		0.0 - 1.0 - 2.0 - 2.0 - 22.0 -	
4.0 - 5.0 - 6.0 - 7.0 - 8.0 -	50/5	SS	18"		SILT: Upper 14" is stic Lower 4" hard compact		with Fe oxidation.	12 12 12 12 12 12 12 12		25.0 - 26.0 - 27.0 - 28.0 - 29.0 -	
0.0 - 1.0 - 2.0 - 3.0 - 4.0 -	29,32,50/4	SS	12"		SANDY SILT: Moist to oxidation and quartz ba					30.0 - 31.0 - 32.0 - 33.0 - 34.0 - 35.0 -	
5.0 <u>-</u> 6.0 <u>-</u> 7.0 <u>-</u>	28,50/5	ss	10"		GRAVEL AND SANI oxidation and quartz b	anks at 45 degree ar	ngles.		000	36.0 - 37.0 - 38.0 -	
8.0 <u>-</u> 9.0 <u>-</u> 0.0 -	42,50/6	ss	5"		SANDY SILT: Upper white & gray sandy sil 40 ft.	2" is wet silty gray s t, with black and Fe	and. Bottom 3" is oxidation spots. I	odry \C 3.T. at C		39.0 - 40.0 - 41.0 -	



\perp	Richardson Smith Gardner and Assoc					FIELD BOREHOLE LOG						
	14 North Bo (919) 828-0	•	enue, F	Raleigh NC	27603	BOREHO	LE NUMBER	MW-	6D	Page 1 of	2	
PRO	DJECT NAME:	Dav	idson	County 1	Landfill	TOTAL DEPTI						
100	CATION:	Dav	idson	County			RFACE ELEVAT NG ELEVATION					
	LLING CO:	Eng	gineeri	ng Tecto	ncis, P.A.	TOP OF CASI	STATIC WATE		LATO	<u></u>		
DRI	LLING METHOD	: HS	A and	AН		Depth (ft)	STATIC WATE	V LEVE	1	<u> </u>		
FIEL	LD PARTY:	Dav	vid Ba	rron		Time		•				
GEO	DLOGIST:	Cla	rk Wij	pfield			<u> </u>					
DAT	E BEGUN: 3/2	7/08	DATE	COMPL	ETED: 3/27/08	Date	<u> </u>					
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	·			LITHOLOGY	DEРТН	WELL	INSTALLATION
0.0			· ·	1104						0.0		
1.0 - 2.0 - 3.0 - 4.0 - 5.0 -	00 07 50/4		13"	HSA	SANDY SILT: Browni spots in upper 10". Lo grained sandy silt quart Increased percent of Fe	wer portion is white z fragments increas	/ gray compacted : e in size with dept	fine		1.0 - 2.0 - 3.0 - 4.0 - 5.0 -	nd en 100 a design	
6.0 - 7.0 - 8.0 - 9.0 - 10.0 -	28,37,50/1	SS								5.0 - 7.0 - 8.0 - 9.0 -		
11.0 - 12.0 13. 14.0 -	20,36,31	SS	17"					·		11.0 - 12.0 - 13.0 - 14.0 -	38.4	
15.0 — 16.0 — 17.0 — 18.0 —	23,36,50/6	SS	14"					į		15.0 - 16.0 - 17.0 - 18.0 - 19.0 -		
20.0 - 21.0 - 22.0 - 23.0 - 24.0 -	32,44,50/5	ss	18"					٠		20.0 - 21.0 - 22.0 - 23.0 - 24.0 -	The state of the s	
25.0 - 26.0 - 27.0 - 28.0 - 29.0 -	50/5	SS	18"		SILT: Upper 14" is stic Lower 4" hard compac		with Fe oxidation.			25.0 - 26.0 - 27.0 - 28.0 - 29.0 -	The second secon	
30.0 - 31.0 - 32.0 - 33.0 - 34.0 -	29,32,50/4	ss	12"		SANDY SILT: Brown quartz bands at 45 deg		t with Fe oxidatio	n and		30.0 - 31.0 - 32.0 - 33.0 - 34.0 -	The state of the s	
35.0 - 36.0 - 37.0 - 38.0 - 39.0 -	28,50/5	SS	10"		GRAVEL AND SANI medium grained sand. sand, with quartz fragr	Lower 6" poorly so			00000	37.0 – 38.0 – 39.0 –	The state of the state of the	
10.0 = 1 11.0 = 1 12 13.c	41,42,50/6	ss	5"		SILT AND SAND: Up white and gray sandy s	oper 2" wet silty gra silt with black and F	y sand. Bottom 3" e spots.	dry	2-7	40.0 - 41.0 - 42.0 - 43.0		

Richardson Smith Gardner and Assoc 14 North Boylan Avenue, Raleigh NC 27603						FIELD BOREHOLE LOG					
	919) 828-05		enue, R	taleigh NC	27603	BOREHOLE NUI	MBER	MW-6D	Page 2 of 2		
I AGA	JECT NAME: ATION: LING CO:	Dav	idson	County County		TOTAL DEPTH: 70.5 ft. GROUND SURFACE ELEVATION: TOP OF CASING ELEVATION:					
		_		_	ncis, P.A.	STATI	C WATER	LEVEL (TO	(C)		
	LING METHOD: D PARTY:		and.			Depth (ft)					
1	LOGIST:		id Bar			Time					
			rk Wij		ETED: 2/35/00	Date					
DATE	BEGUN: 3/27		DATE	COMPL	ETED: 3/27/08			<u> </u>			
DЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	·		гітносову	ОЕРТН	WELL INSTALLATION	
17.0 - 18.0 - 19.0 -	19,27,50 50/2	SS Grab Grab		AH	bands. SILTY SAND: Wet with coarse sand. A.R. at 5 GRANITE: Weathered	×	ı dark brown		43.0 — 44.0 — 45.0 — 46.0 — 47.0 — 48.0 — 50.0 — 51.0 — 52.0 — 55.0 — 55.0 — 56.0 — 57.0 — 60.0 — 61.0 — 62.0 — 63.0 — 64.0 — 65.0 — 66.0 — 67.0 — 68.0 — 69.0 —		

					ner and Assoc	FIELD B	OREHOLE	LOG			
	14 North Bo (919) 828-05	•	nue, R	aleigh NC	27603	BOREHOL	E NUMBER	MW-7	•	Page 1 of 1	
PROJECT NAME: Davidson County Landfill CATION: Holy Springs, NC LLING CO: Engineering Tectonics, P.A. DRILLING METHOD: HSA and AH FIELD PARTY: David Barron GEOLOGIST: Clark Wipfield				TOTAL DEPTH GROUND SUR TOP OF CASIN Depth (ft)	FACE ELEVAT		. (ТО	C)			
	TE BEGUN: 3/24		_		ETED: 3/25/08	Date					
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION				LITHOLOGY	ОЕРТН	WELL
0.0 1.0 - 2.0 -				HSA	SANDY SILT: Dry wh oxidation. Minor grave	ite and gray compact I fragments with de	eted sandy silt wit pth. A.R. at 18 ft	h Fe		0.0 1.0 – 2.0 –	
3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 -	13,23,31	SS	18"							3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 8.0 -	
9.0 -).0 - 1 2.0 - 3.0 -	23,50/6	SS	12"							9.0 - 10.0 - 11.0 - 12.0 - 13.0 -	Tribus de la companya
1.0 <u>-</u> 5.0 <u>-</u> 5.0 - 7.0 -	16,23,34	ss	18"							15.0 - 16.0 - 17.0 -	
3.0 <u>-</u> 9.0 -		Grab		АН	DIORITE: Very compo	etent diorite. B.T. at	37.4 ft.			18.0 - 19.0 - 20.0 - 21.0 -	A Company of the Comp
1 0 - 2.0 - 3.0 - 4.0 -		Grab								22.0 - 23.0 - 24.0 - 25.0 - 26.0 -	THE STANGE OF TH
6.0 - 7.0 - 8.0 - 9.0 -		Grab							00000		
1.0 - 2.0 - 3.0 - 4.0 -		Grab		7		·			0000	32.0 - 33.0 - 34.0 -	
36.∩ - 37	וַן	Grat							<u>to:</u>	37.0 -	



K)	X				ner and Assoc	FIELD	BOREHOLE	LUG		
14 North Boylan Avenue, Raleigh NC 27603 (919) 828-0577						BOREHOL	E NUMBER	MW-8	Page 1 of	2
PROJECT NAME: Davidson County Landfill CCATION: Davidson County LING CO: Engineering Tectonics, P.A.							I: 58.6 FACE ELEVATION:	ON:		
							STATIC WATER	LEVEL (T	OC)	
	LING METHOD D PARTY:		id Bai			Depth (ft)	46.58			
	LOGIST:		rk Wij			Time	10:45am			
	E BEGUN: 3/24		-		ETED: 3/25/08	Date	4/3/08			
֡֡֜֝֝֝֜֜֜֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֓֓֓֓֜֓֓֡֡֓֜֡֡֡֓֜֓֓֡֡֡֜֜֜֜֓֡֡֡֜֜֜֓֡֡֡֜֜֜֡֡֡֡֡֡	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			LITHOLOGY	DEРТН	WELL
	****			HSA	SANDY SILTY CLAY bands at 45 degrees in oxidation				0.0 1.0 – 2.0 – 3.0 –	
111111111	13,5,6	SS	16"		SILTY CLAY: Dry lig white/gray fined graine		oands (horizontal) i	in	4.0 - 5.0 - 6.0 - 7.0 - 8.0 -	
Lafalata.	8,9,13	ss	17"					\frac{\z}{\z} \ \z \ \z \ \z \ \z \ \z \ \z \ \z	9.0 - 10.0 - 11.0 - 12.0 - 13.0 -	
بالململيليل	11,14,17	SS	18"					-Z- -Z- -Z-	14.0 - 15.0 - 16.0 - 17.0 - 18.0 -	
وإبابليانايل	14,18,28	SS	17"		SILTY CLAY: Yellow mottles, A.R. at 31ft.	silt in silty sand tha	at is white/gray wit	h Mn	20.0 - 21.0 - 22.0 - 23.0 -	
سليداء اءابال	15,18,22	ss	18"					アンド	24.0 - 25.0 - 26.0 - 27.0 - 28.0 -	
	50/1	SS	2"	АН		11 to p.m. 480.6	0	- <u>-</u> - <u>-</u> - <u>-</u>	29.0 - 30.0 - 31.0 -	
		Grab			DIORITE: Competent	diorite. B.T. at 58.6	π.		32.0 - 33.0 - 34.0 - 35.0 - 36.0 - 37.0 - 38.0 -	Seption of the second second
) -) -) - 1		Grab						0.00	39.0 - 40.0 - 41.0 - 42.0 - 43.0	

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Richardson Smith Gardner and Assoc						FIELD E	BOREHOLE	LOG		
	14 North Bo (919) 828-05	-	enue, F	Raleigh NC	27603	BOREHOL	_E NUMBER	MW-8	Page 2 o	f 2
PROJECT NAME: Davidson County Landfill COATION: Davidson County							H: 58.6 RFACE ELEVATION		•	
	LING CO:	~	-	_	nics, P.A.		STATIC WATE	R LEVEL (T	OC)	
	LING METHOD		A and .			Depth (ft)	46.58			
	D PARTY:		id Bar			Time	10:45am			
	LOGIST: E BEGUN: 3/2 4		rk Wij		ETED: 3/25/08	Date	4/3/08			
ОЕРТН	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION			ПТНОСОСУ	ОЕРТН	WELL
3.0		Grab Grab Grab						30303030303030	44.0 45.0 46.0 47.0 48.0 49.0 50.0	

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Appendix E CQA Meeting Minutes

Construction Quality Assurance Report
Davidson County MSW Landfill - Phase 2 Area 1
Davidson County, North Carolina





MEMORANDUM

TO:

Distribution

FROM:

Pieter K. Scheer, P.E.

Pieter K. Scheer

Richardson Smith Gardner & Associates, Inc.

DATE:

December 12, 2007

SUBJECT:

Davidson County

Davidson County MSW Landfill - Phase 2 - Area 1 Construction Meeting Summary - December 5, 2007

On December 5, 2007, a construction meeting was held at the Davidson County Landfill offices. The purpose of the meeting was to discuss construction progress and future stages of construction. Also part of this meeting included the required Soil Liner CQA meeting. The following is a summary of major topics discussed during the meeting:

Attendees:

Steven Sink, Davidson County Karry Blaylock, Davidson County Larry Kirkland, T&K Construction Tommy Newman, T&K Construction Alex Greene, Engineering Tectonics Pieter Scheer, RSG Byron Hackney, RSG

Current Progress:

T&K is continuing with earthwork activities and has completed the installation of culverts. The Area 1 excavation is getting more difficult with depth as the material is getting rockier. T&K currently has the north end and other portions of Area 1 near grade. T&K estimates that, except for soil liner material left in place, there is approximately 70K CY of excavation remaining. T&K also estimates that there is only about 5K CY of structural fill left to place.

Planned Construction Activities:

T&K plans to continue working on earthwork. Also planned is the installation of baffles in Sediment Basin No. 4 and the temporary seeding of disturbed areas. T&K plans to start work on the soil liner test pad during the week of December 10th.

Looking ahead, T&K plans to work on the soil liner (weather dependent) starting with the test pad and plans to start the leachate force main installation in January. T&K also plans to burn the remaining piles of vegetative matter at a later date depending on the issuance of a burn permit.

Other Items

T&K noted that the power to the construction trailer is on.

Drainage Channel No. 2 was discussed. Based on field conditions and upon review of his design calculations, Mr. Scheer agreed that this channel could be redirected to tie into Drainage Channel No. 3. This will shorten the quantity of this channel, which is a unit price pay item.

Construction Meeting Summary - December 5, 2007 December 12, 2007 Page 2 of 2

The amount of rock in the final few feet of structural fill in the perimeter berms was discussed. Mr. Scheer noted that isolated larger rocks (1 to 2 feet in any dimension), while allowed elsewhere in the fill, should be generally kept out of the upper 5 feet or so of fill within the defined present and future utility corridor (outer 8 feet of perimeter berm - per Detail 1/R1). This will minimize the difficulty of the installation of planned and future leachate force mains and electrical conduit.

The perimeter road drainage channel within the County's work area was discussed. Mr. Scheer stated that although the lining of this portion of channel was covered under the estimated quantity of this unit price item, the earthwork for this portion of channel is the County's responsibility. However, the County may elect to build this channel later as it is not presently needed. Thus, this quantity of channel would just be deducted to determine the final quantity paid for under the contract.

Soil Liner CQA Meeting

Mr. Scheer went over a review of specification and CQA requirements for the soil liner based on the **attached** agenda and relevant tables from the project CQA Manual.

T&K plans to construct the test fill (pad) in the SW corner of the cell. Survey information will be provided for the subgrade.

Next Meeting:

The next meeting is scheduled for Wednesday December 19th at 10:00 a.m.

If you should have any questions, comments, or revisions concerning these minutes, please notify us as soon as possible.

cc: Distribution:

Charlie Brushwood, Davidson County Steven Sink, Davidson County Lonnie Burgess, T&K Construction Larry Kirkland, T&K Construction Jamie Jenkins, T&K Construction Jeff Sample, T&K Construction Alex Greene, Engineering Tectonics Byron Hackney, RSG

SOIL LINER CQA MEETING

AGENDA

1. Review of Specification Requirements (Tech. Specification Section 02250)

Test Fill Construction:

- Tentative location/Timeframe
- Record survey of test fill subgrade (if in cell)
- Size: 20' x 50' Min.
- Depth: 3 6" compacted lifts
- Same materials and equipment to be used in main construction

Construction of Compacted Soil Liner (CSL):

- Confirmation of test fill must be complete before beginning
- Subgrade prep. and proof-roll
- Loose CSL placed in max. thickness of compaction feet (or penetration depth) (first lift placed thicker to avoid subgrade contamination o.k.)
- Clod size $\leq 3/4$ inches (may require breakdown prior to compaction)
- Rock fragments: 1.5" below finished CSL surface; 0.5" in finished CSL surface
- Compaction Requirements: ≥ 95% Std. Proctor; ≥ optimum moisture content; k ≤ 1 x 10⁻⁵ cm/sec; 18" min. finished thickness (0.15 foot overbuild allowed)
- Protection of CSL from rain and desiccation (i.e. smooth drum roll)
- Scarify surface prior to placement of subsequent lifts or prior to moisture addition if material is determined to be too dry
- Holes in CSL patch with compacted CSL or sodium bentonite compacted and hydrated
- Surveying: Verify thickness and slope of CSL using survey grid (need grid from surveyor)

2. Review of CQA Requirements (CQA Manual Section 4.0)

Performance of Control Tests on CSL material (Testing Underway)

Approval of CSL subgrade (visual and review of survey information)

COA Testing:

- CQA testing in accordance with CQA Manual
- Timeframe for turnaround of CQA tests (typ. 2 to 3 days for prelim. results)

TABLE 1: SOIL LINER MATERIAL REQUIREMENTS

PROPERTY	TEST METHOD	VALUE
Visual Classification .	ASTM D 2488	Clean natural fine-grained soil free from organics, debris, or other detrimental material. Soil type as required to achieve the hydraulic conductivity criteria.
Clod Size		Maximum = ¾ inch (or less if required to achieve hydraulic conductivity criteria)
Gradation	ASTM D 422	Max. = ½ inch (finished Soil Liner surface) Max. = 1½ inches (below finished Soil Liner surface)
Atterberg Limits	ASTM D 4318	As required based on soil type.
Bentonite Content (Amended Soils Only)	# #	> 2% by weight as required to meet the hydraulic conductivity criteria
Hydraulic Conductivity (Lab Remolded)	ASTM D 5084 ³	
(Compacted Soil Liner)		≤ 1 x 10 ⁻⁵ cm/s at a density of ≥ 95% maximum standard dry density and a moisture content ≥ optimum moisture content ⁴

TABLE 2: IN-PLACE SOIL LINER REQUIREMENTS

PROPERTY	TEST METHOD	VALUE
Density	ASTM D 69381	≥ 95% maximum standard dry density4
Moisture Content	A\$TM D 6938 ²	≥ optimum moisture content⁴
Maximum Lift Thickness (Compacted): (Compacted Soil Liner)		6 inches
Hydraulic Conductivity (Shelby Tube): (Compacted Soil Liner)	ASTM D 5084 ³	≤ 1 x 10 ⁻⁵ cm/s
Completed Thickness: (Compacted Soil Liner)	Survey	18 inches minimum

Notes:

- 1. Optionally use ASTM D 1556, ASTM D 2167, or ASTM D 2937.
- 2. Optionally use ASTM D 2216, ASTM D 4643, or ASTM D 4959.
- 3. Maximum effective confining pressure and maximum hydraulic gradient as follows.

 Backpressure as recommended by ASTM D 5084. Modifications of the maximum hydraulic gradient may be allowed by the Engineer depending on actual hydraulic conductivity values.

Material	Maximum Effective Confining Pressure (psi)	Maximum Hydraulic Gradient
Compacted Soil Liner (k ≤ 1 x 10 ⁻⁵ cm/s)	10	15

4. Or as otherwise determined by remolded samples to achieve hydraulic conductivity criteria.

END OF SECTION

TABLE 4.1: CQA TESTING PROGRAM FOR SOIL LINER MATERIAL APPROVAL

PROPERTY	TEST METHOD	MINIMUM TEST FREQUENCY		
CONTROL TESTS:				
Visual Classification	ASTM D 2488	Each Soil		
Moisture Content	ASTM D 2216	2,000 CY per Each Soil		
Grain Size Analysis	ASTM D 422	2,000 CY per Each Soil		
Atterberg Limits	ASTM D 4318	2,000 CY per Each Soil		
Moisture-Density Relationship	ASTM D 698	5,000 CY per Each Soil		
Hydraulic Conductivity - Lab Remolded	ASTM D 5084 ³	10,000 CY per Each Soil		

TABLE 4.2: CQA TESTING PROGRAM FOR SOIL LINER TEST FILL

PROPERTY	TEST METHOD	MINIMUM TEST FREQUENCY					
CONTROL TESTS: (See Table 4.1)							
Moisture-Density Relationship	ASTM D 698⁴	1 per lift					
Hydraulic Conductivity - Lab Remolded	ASTM D 5084 ^{3,4}	1 per lift					
RECORD TESTS:							
Lift Thickness		Each Lift					
Atterberg Limits	ASTM D 4318	l per lift					
Grain Size Analysis	ASTM D 422	1 per lift					
In-Place Density	ASTM D 2922 ¹	3 per lift					
Moisture Content	ASTM D 6938 ²	3 per lift					
Hydraulic Conductivity - Undisturbed (Shelby Tube)	ASTM D 6938 ³	1 per lift					

TABLE 4.3: CQA TESTING PROGRAM FOR SOIL LINER

PROPERTY	TEST METHOD	MINIMUM TEST FREQUENCY
CONTROL TESTS: (See Table 4.1)		
RECORD TESTS:		
Lift Thickness		Each Lift
In-Place Density	ASTM D 69381	10,000 ft² per lift
Moisture Content	ASTM D 6938 ²	10,000 ft ² per lift
Hydraulic Conductivity - Undisturbed (Shelby Tube)	ASTM D 5084 ³	80,000 ft ² per lift

Notes:

- 1. Optionally use ASTM D 1556, ASTM D 2167, or ASTM D 2937. For every 10 nuclear density tests perform at least 1 density test by ASTM D 1556, ASTM D 2167, or ASTM D 2937 as a verification of the accuracy of the nuclear testing device.
- Optionally use ASTM D 2216, ASTM D 4643, or ASTM D 4959. For every 10 2. nuclear moisture tests perform at least 1 moisture test by ASTM D 2216, ASTM D 4643, or ASTM D 4959 as a verification of the accuracy of the nuclear testing device.
- Maximum effective confining pressure and hydraulic gradient as required by the 3. project specifications. Backpressure as recommended by ASTM D 5084.
- These tests performed on the test fill may count toward the minimum frequencies 4. established in Table 4.1.



MEMORANDUM

TO:

Distribution

FROM:

Pieter K. Scheer, P.E.

Richardson Smith Gardner & Associates, Inc.

Pieter K. Scheer Biological by Paler K. Scheer Pieter K. Scheer Biological State General, Cr. U.S. O. Broadway State General Cr. U.S. O. Broadway State Gene

DATE:

February 26, 2008

SUBJECT:

Davidson County

Davidson County MSW Landfill - Phase 2 - Area 1 Construction Meeting Summary - February 11, 2008

On February 11, 2008, a construction meeting was held at the Davidson County Landfill offices. The purpose of the meeting was mainly for the required geosynthetics CQA meeting. The following is a summary of major topics discussed during the meeting:

Attendees:

Larry Kirkland, T&K Construction
Sean Simonpietri, Landsaver Environmental
Alex Greene, ET
Pieter Scheer, RSG
Byron Hackney, RSG

Current Progress:

T&K is preparing the surface of the soil liner for the geosynthetics.

Planned Construction Activities:

Landsaver Environmental (Landsaver) will begin the geosynthetics installation in the day or so depending on the weather. T&K will begin placement of stone and pipe as the geosynthetics work is completed (including obtaining required survey data and results of required CQA tests).

Geosynthetics Status and CQA Meeting:

Mr. Scheer stated that all geosynthetics were currently approved and are on-site. Mr. Scheer reviewed specification and CQA requirements for the geosynthetic components based on the attached agenda.

Geosynthetics Items Discussed:

The use of Landsaver's ATV was discussed. Mr. Scheer stated that an ATV was allowable for use during the deployment of geosynthetics as long as it is operated with no sudden stops, starts, or turns.

Subgrade acceptance was discussed. Landsaver stated that their preference would be to install geosynthetics over areas that they considered acceptable without signing a formal certificate. Mr. Scheer agreed with this practice.

Landsaver's general panel placement strategy was discussed. Landsaver plans to start on the west side of Area 1 with short runs down the western side slope. Landsaver then plans to deploy from the south end making longer runs toward the north end. T&K plans to construct and survey the sump just ahead of

Construction Meeting Summary - February 11, 2008 February 26, 2008 Page 2 of 2

deployment in this area to allow continued drainage through the existing culvert adjacent to the sump location.

The coordination of paint colors used for marking information on the liner system was discussed. Landsaver plans to use white or yellow and RSG will use red or orange.

Next Meeting:

The next meeting will be scheduled depending on the weather and progress with the geosynthetics.

If you should have any questions, comments, or revisions concerning these minutes, please notify us as soon as possible.

Attachment

cc: Distribution:

Charlie Brushwood, Davidson County Steven Sink, Davidson County Lonnie Burgess, T&K Construction Larry Kirkland, T&K Construction Jamie Jenkins, T&K Construction Jeff Sample, T&K Construction Alex Greene, Engineering Tectonics Byron Hackney, RSG

GEOSYNTHETICS CQA MEETING

AGENDA

1. Status of Approvals

Material	CQA Status				
Subgrade/Soil Liner	 Lift 1 and 2 permeability tests complete; Lift 3 - Initial 3 tests complete - last 5 tests underway Compiling CQA data Awaiting survey data 				
GCL (CETCO Bentomat SDN)	 Passed material testing Material on-site 				
60 mil Textured HDPE Geomembrane (Agru Microspike)	Passed material testing Material on-site				
Geotextiles (SKAPS GE112 & GE160)	 Passed material testing Material on-site 				

2. Review of Specification Requirements

GCL (Tech. Specification Section 02776):

- Installation in accordance with specs, and approved procedures.
- Install GCL with light gray (6 oz./sy) side up (against 60 mil HDPE geomembrane) (Black 3 oz/sy side down).
- 6" min. overlap on roll edges and 12" min. along roll ends with 0.25 lbs/LF bentonite (No bentonite is required on roll edges with "Supergroove" system.).
- No horizontal (end) seams on 3H:1V slopes.
- Shingle all GCL seams (upper panel over lower panel).
- Cover GCL with geomembrane in timely manner (especially when rain is forecast).

Geomembrane (Tech. Specification Section 02775 (HDPE-GM)):

- Installation in accordance with specs, and approved procedures.
- Install Geomembrane with longer nubs down against GCL.

- Landsaver to provide the following:
 - Trial seam log
 - Panel/Seam log
 - Non-destructive testing (vacuum/air pressure tests) log
 - Destructive sampling log
 - Repairs log

Provide copies of the above forms to RSG at least weekly for review.

Record Information:

Per Paragraphs C.2.c. and D.8 of Section 02778, the following information is required for each geomembrane:

<u>CQC Documentation:</u> Includes trial seam logs, panel placement logs, panel seaming logs, non-destructive seam testing report forms, field destructive seam testing report forms, and repair logs.

As-Built Drawing:

- Location and numbering of all panels/seams;
- (2) Location of all repairs/patches;
- (3) Location of all destructive test locations; and
- (4) Location of all pipe penetrations and other appurtenances (if applicable).

<u>Survey information needs to be obtained/reviewed prior to placement of overlying materials.</u>

Geotextiles (Tech. Specification Section 02240):

- Installation in accordance with specs, and approved installation procedures
- Plan for seaming geotextiles?

3. Review of CQA Requirements (CQA Manual Sections 5.0, 6.0, 7.0, and 8.0)

Conformance Testing of Geosynthetics Materials:

See Status of Approvals above.

Geomembrane (HDPE):

- Marking on liner for panel identification, sampling, repairs, etc. (Landsaver/RSG/Surveyor) (pen colors?)
- Field tensiometer provided by Landsaver should have recent calibration data
- Trial seam procedures in accordance with Section 5.4.5.1 (Landsaver to document) (Note: minimum of four coupons 2 peel & 2 shear)
- Non-Destructive Testing: Vacuum or air pressure testing to be done continuously by Landsaver on all seams in accordance with Section 5.4.6.1

- Destructive Testing: Samples to be cut and tested at minimum one per 500 LF of weld in accordance with Section 5.4.6.2. (Landsaver to document) (Note: minimum of ten coupons 5 peel & 5 shear). Minimum one sample per day sampled and sent to CQA laboratory (Typical 1 day turnaround on test results).
- Repairs and Verification: In accordance with Section 5.4.7

4. Review of Project Drawings

Landsaver panel placement strategy?

5. Other Items

Collection pipe cleaning and camera inspection

